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Dairy and Food Sanitation®

A Publication of the International Association of Milk, Food and Environmental Sanitarians, Inc.

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Good Sanitation Practices

1987 IAMFES Annual Meeting Report

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Developing Scientist Award Papers also being accepted, see p. 463

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President's Message

Dear IAMFES Members and Subscribers:

The 74th annual meeting and educational conference of IAMFES held in Anaheim, California, in August is now history. Records were established in the number of attendees, papers presented, exhibitors and other areas.

Thanks to an efficient and effective Local Arrangements Committee, under the chairmanship of Austin Olinger, the entire week of committee meetings, formal sessions, hospitality events, and companion activities were a huge success.

Your Executive Board recently met in Ames to plan the '88 program in Tampa, Florida, and conduct other pertinent association business. Preliminary program plans under the direction of President-elect Robert Gravani strongly indicate one of the best programs ever.

Thanks primarily to telephone marketing at the Ames office, membership, including sustaining members, is showing a steady increase. Although a sizeable overall increase is noted, affiliate members continue to decrease each year. This issue is of great concern and will be addressed during the year through your Affiliate Council Chairman, Bill Coleman.

The Board approved a 15% dues increase for regular membership, subscriptions and sustaining members for the coming year. The last increase approved in 1981 has more than been absorbed by inflation in printing and postage making this increase necessary.

Our 1987 commitment to update and give direction to all committees will continue throughout the coming year. Vice President, Ron Case, will be working closely with this group. The Board feels strongly that the viable functions of the association lie with our committees. Of particular interest this year is the Long Range Planning Committee with Chairman Mike Wehr, Washington, appointed last year by Roy Ginn. Like any new endeavor, the establishment of the audio/visual lending library, funded through sustaining membership monies, has been slow and somewhat frustrating at times. However, Past President Sid Barnard will give added emphasis to this new membership benefit this year.

After 20 plus years, Dr. Elmer Marth has resigned as editor of the Journal of Food Protection Words cannot express our appreciation to Elmer for his dedication over the years. Dr. Lloyd Bullerman, Nebraska, will assume this position and we feel comfortable with his capabilities in continuing the status of the journal as a premier worldwide scientific publication. Dr. Robert Marshall will continue to serve as Chairman of the JFP Management Committee.

Dairy and Food Sanitation is on sound footing with a comfortable backlog of articles. Kathy Hathaway will continue to serve as Editor, Margie Marble, Associate Editor and Harold Bengsch as Chairman of the DFS Management Committee.

Newly elected Secretary, Robert Sanders, brings a wealth of knowledge of the Board and will continue with the same dedication as past officers.

The day-to-day operation of the affairs of the association under the leadership of Kathy Hathaway, our Executive manager, has performed above expectations. Thanks go to our staff in Ames.

Through this page in *Dairy & Food Sanitation*, we'll attempt to keep you abreast of association affairs.

I appreciate the honor to serve as your President this coming year.

Respectfully submitted,
Leon Townsend, President
IAMFES

International Association of Milk, Food & Environmental Sanitarians, Inc.

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Announcement
Developing Scientist Awards

(Supported by Sustaining Members)

Awards

Five (5) awards will be presented: 1st place, $500 and a plaque; 2nd place, $200 and a certificate; 3rd place, $100 and a certificate; 4th place, $50 and a certificate; 5th place, $50 and a certificate.

Purpose

1. To encourage graduate students to present their original research at the IAMFES annual meeting.
2. To foster professionalism in graduate students through contact with peers and professional members of IAMFES.
3. To encourage participation by graduate students in IAMFES and the annual meeting.

Who Is Eligible

Graduate students enrolled in M.S. or Ph.D. programs at accredited universities or colleges whose research deals with problems related to environmental, food and/or dairy sanitation, protection and safety. Candidates cannot have graduated more than one (1) year prior to the deadline for submitting abstracts.

Criteria

1. A short abstract of the paper must be submitted to the IAMFES office by January 1 of each year. (Use the blue abstract forms from the October issue, if possible.)
2. The author must indicate on the abstract form the desire to be considered for the competition.
3. The paper and the student must be recommended and approved for the competition by the major professor or department head.
4. The paper must represent original research done by the student and must be presented by the student.
5. An extended abstract form will be sent to all who enter the competition, and must be completed and returned by the deadline date on that form.
6. Each student may enter only one (1) paper in the competition.
7. Papers are to be presented as oral papers and should be approximately fifteen (15) minutes in length with an additional five (5) minutes allowed for questions, for a total of twenty (20) minutes.
8. The use of slides or other visual aids is encouraged.
9. The papers will be judged by an independent panel of judges.
10. Awards will be presented at the annual IAMFES Awards Banquet.

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Dairy and Food Sanitation

CONTENTS Vol. 7 No. 11 NOVEMBER, 1987

ARTICLES:
- **Good Sanitation Practices** 566
  Lou Bianco
- **Cutting Cholesterol? Look to the Label** 569
  Chris Lecos

PRESIDENT'S MESSAGE 561

MEMBERSHIP APPLICATION 562

DEVELOPING SCIENTIST AWARD 563

NEWS AND EVENTS 574
- Audio Visuals in the IAMFES Library
- 1987 IAMFES Annual Meeting Report
- Integrated Genetics Develops Longer Acting TPA
- Dr. John H. Silliker Retires
- Audio visual in the IAMFES Library

**** and more ****

NEW PRODUCT NEWS 580

BOOK REVIEWS 583

FOOD SCIENCE FACTS 585

FOOD AND ENVIRONMENTAL HAZARDS TO HEALTH 587

74TH IAMFES ANNUAL MEETING REPORT 590

NEW MEMBERS 609

BUSINESS EXCHANGE 613

JFP ABSTRACTS 618

CALENDAR 622

Dairy and Food Sanitation, Vol. 7, No. 11, Pages 566-568 (November 1987)
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Good Sanitation Practices

by Lou J. Bianco

L.J. Bianco & Associates, Inc.
850 Huckleberry Lane
Northbrook, IL 60062

My presentation today will cover in general, the subjects of "Food Plant Sanitation", and "Good Sanitation Practices", their importance, necessity and real functional role in the plant production of wholesome and quality food products.

In the past 10 to 15 years, there have been many new product innovations and general technological changes occurring in the processing of most foods. During this period, the plant sanitation function responsibilities in many plants has virtually remained the same, even though the food industry as a whole, has been going through progressive refinements and processing sophistication. I believe the work importance in this whole area of plant sanitation has been overlooked and grossly neglected by companies and plant management, in particular.

The many changes which have been made in food processing, I believe require more diligence and thoroughness in plant sanitation operational controls - than ever before. Yet, there are so many managers operating food plants and other plants servicing the Food Industry, who today, have no conception of the real relative increased importance of the functional sanitation role in food operations.

In reality, they have only to look at the press and television coverage of food poisoning cases to realize that the old concept and practice of putting the poorest worker, most troublesome employee, and/or newest employee on night cleanup, is a tradition and practice which must be stopped. Good plant equipment cleanup and good facility housekeeping on a "day-to-day" basis is an essential, and must requirement today, for all food processing operations.

So, in perspective, the reliable good worker should be assigned to equipment cleanup work to be more assured of proper cleaning and better protection of finished product quality.

Everyone must realize this, especially with the extensive plant renovations and/or expansion programs many of you have experienced in your own plants.

Such developments often have changed the architectural layout and product - flow of some plant areas, making plant area and equipment cleanup, more intricate, complex, and difficult. Particularly, when it comes to inter and intra departmental piping layouts involving raw material and finished products, where identification and separation of lines, as well as line cleanliness, are extremely important factors for the prevention of product contamination.

Also, specially designed equipment areas have become more common and prevalent in many plants. Plant computer programmed operations, new product innovations, and technical product advances plus the other changes mentioned, have created many new sanitation responsibilities and sanitation problems.

What must the Food Industry do to cope with the increasing sanitation and product quality problems facing us today?

1. Foremost of all, food plant operators must recognize the necessity and importance of establishing an organized and basic in-plant sanitation program.
   (a) Ultimately, Good Sanitation Practices (GSP's) will evolve from such a program.
2. Secondly, Management must be committed to and supportive of such a program, in much the same manner and importance as a plant GMP program.
3. Thirdly, a real effort should be made by all plants to develop an integrated Good Manufacturing and Good Sanitation Practices (GMP and GSP) program as these activities are functionally plant-interrelated.

Food Industry must:

1. Make food plant operators recognize the necessity and

importance of establishing an organized in-plant sanitation program.

2. Have top management committed to and supportive of such a program in same manner of importance as plant GMP program.

3. Make an effort to have plants develop and adopt an integrated "Good Manufacturing Practices" *and* " Good Sanitation Practices" (GMP and GSP) program as these activities are functionally plant-interrelated.

What are the Requirements of a Basic Sanitation Program?

1. A basic and practical sanitation program development involves 8 basic steps which must be taken. These are:

Sanitation Program Development Involves 8 Steps

(1) A real commitment on the part of the management for organization and supervision of in-plant sanitation controls.

(2) An integrated "Good Manufacturing Practice" (GMP) and" Good Sanitation Practice" (GSP) documented guidelines program to make employees more aware of company guideline rules for equipment, facility and product cleanliness.

(3) Written plant sanitation procedures covering all aspects of proper equipment cleanup, housekeeping, environmental cleanliness, and Pest Controls.

(4) An ongoing plant employee training program involving necessary GMP and Sanitation Controls.

(5) A regular plant, equipment cleaning and sanitizing schedule.

(6) Sound production operational methods and procedures including departmental objectives.

(7) Adequate plant pest controls.

(8) A good maintenance program.

What are plant sanitation work responsibilities?

1. All employees must be made aware that "cleanliness" is "ALL IMPORTANT" and must prevail at all times.

2. Not only is the sanitation cleaning crew responsible for sanitation cleanup, good housekeeping, etc., but all employees are responsible for general cleanliness in and about their various activities in the plant.

3. The plant manager is responsible in general, for plant sanitation, equipment cleanup, and plant facility cleaning, etc.

(a) Manager could delegate to line supervisors, etc. responsibilities of proper application and implementation of program.

(b) Shift supervisor must continually monitor sanitation operations.

(c) Plant Quality Control must audit the thoroughness of plant and equipment cleanup.

What is Good Sanitation Practices Definition?

1. Good sanitation practices are daily techniques in the work place synonymous and associated with employee equipment cleaning, and/or plant facility cleaning, and personal cleanliness and hygiene.

2. To practice cleanliness in the work place, all employees need to be made aware of the different types of cleanliness groupings -- physical, chemical and microbiological.

(a) Physical - that which one sees with the naked eye, obvious filth, soiled or unclean equipment, dirty surfaces, glass fragments, etc.

(b) Chemical - associated with extraneous matter items such as pesticides, detergent cleaner residues, sulfite, miscellaneous air particles, and other miscellaneous product contaminates, etc.

(c) Microbiological - related to product contamination which results in high or excessive yeast and mold counts, total counts, coliform, etc. and other miscellaneous toxic bacteria found not normally associated with product formula composition.

GOOD SANITATION PRACTICE (G.S.P.) CONCEPTS

Good Sanitation Practices Include:

1. Visible, physical, chemical and/or environmental cleanliness plus:

- Product bacteriological cleanliness.
- Prevention of product filth.
- Protection of product from foreign and extraneous matter contamination.
- Promotion of product package cleanliness.
- Production of Quality products on a continual basis.

2. Plant Environmental Cleanliness

The day-to-day maintenance of an effective control program on plant environmental areas involves:

- Maintaining a neat and clean appearance around the periphery area of the plant facility.
- Keeping inside and outside of plant building in good repair and neatly painted.
- Eliminating insects, rodents, and birds from plant.
- Controlling dust in plant.
- Providing clean air intake system assurance for facility.

3. Sanitation Program Performance

Sanitation programs in food plant operations must be continually evaluated to determine overall effectiveness with regard to:

- Quality of cleaning.
- Product and employee safety.
- Sanitation cost.

The variables involved in sanitation clean-up work which must be controlled are:

- Chemicals used.
- Amount of labor.
- Cleaning time.
- Water usage.
- The energy required to heat water or produce steam.

G.S.P. STANDARDS OF CLEANLINESS

1. Definition

- Plant cleanliness means *free of dirt, contamination of impurities*.
- Sanitation is an essential part of food processing operations and as such, general cleanliness of plant operations must be given a high priority.
- General cleanliness of plant facility operations is essential to safeguard the health of the consumer, and to *ensure* the daily plant production of good quality products.

2. Employee Hygiene and Practices

• On the job good personal hygiene and practices are important items to emphasize and highlight in employee training sessions.

• It is essential that all employees learn and are made aware that cleanliness must prevail at *all* times *in all* operational activities connected with work assignments.

• It is a known fact that employees can carry bacteria which could be transferred to food products.

• It has been reported that major food poisoning outbreaks are often traced back to employees in some manner as contributing to the particular contamination found.

PLANT EQUIPMENT CLEANLINESS STANDARDS

1. All product contact equipment and equipment, that might affect the quality of the products, shall be completely and properly cleaned daily or after each use.

2. Equipment shall be free of milkstone, product films, adhering product particles, detergent residues, brush bristles, etc.

3. Undersides of equipment should be cleaned frequently to prevent buildup of soils, grease, water spotting, and cleaning compound residues.

4. Worn seals, gaskets, and "O" rings are to be replaced. Paper gaskets on pumps, and pipes shall be replaced daily.

5. All equipment should be inspected by the sanitation employee for thoroughness of cleaning before job is considered completed.

6. All parts or equipment that show unusual wear, pitting, or corrosion should be called to supervisor's attention.

7. Any welded pipe lines used shall be reasonably free from cracks, crevices, and rough interior surfaces.

STANDARDS OF CLEANLINESS - MISC. ITEMS

1. *Lubricants* used in processing area shall be food-grade lubricants and properly labeled. Equipment must not, at any time, be *over*-lubricated.

2. *Rubber footwear* used in sanitation work shall remain in plant to prevent "outside source" product contamination.

3. *Sanitary equipment aids* shall be cleaned, rinsed, and hung up to dry after use.

4. *Scaling paint* on walls, pipelines, and ceilings should be scraped and cleaned to prevent loose paint from getting into products.

5. Supplies and finished foods should always be protected. Supplies must be covered, or preferably, removed from cleanup area before cleanup starts.

6. During cleanup, all salvage and holdover product shall be placed in clean and covered containers.

IMPORTANT AND HELPFUL CLEANING RULES

1. Employees must keep their hands clean and free from contamination when working with exposed food products especially when handling salvageable product removed from lines.

2. Product soiled equipment shall be pre-rinsed as soon as possible after it is out of use.

3. Weigh or measure all cleaners for accuracy. Use of excessive amounts of cleaner does more harm than good.

4. DO NOT MIX different cleaners together unless authorized by your supervisor.

5. Follow procedure directions for *safe* and efficient use of detergents, etc.

6. The uppermost portion of equipment should be cleaned before the lower portion is cleaned. Apply water to remove residual product from equipment.

7. Using brush or pad, apply cleaning solution to surfaces to be cleaned. Brush vigorously to dissolve or loosen soils. Apply water rinse immediately.

8. Miscellaneous glassware should not be permitted in production areas.

In conclusion and summary, I am hopeful that this presentation has given each of you a clearer insight into the importance and necessity of having a good plant sanitation program to aid in day-to-day product quality assurance.

Hopefully, I have impressed upon you *the urgent necessity today* for proper planning, organizing and monitoring plant sanitation work.

Lastly, that my presentation has provided the type of sanitation criteria, guidelines, and general information, *essential and necessary* for carrying out an effective "Good Sanitation Practices" plant product quality program.

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Cutting Cholesterol? Look to the Label

by Chris W. Lecos
Food and Drug Administration
Washington, D.C.
(reprinted from the February 1987 issue of the FDA Consumer)

Food labels, which have become scorecards for millions of health-conscious Americans, may soon be offering more information on cholesterol. A regulation proposed recently by the Food and Drug Administration would spell out the language that food companies could use on their packages about cholesterol. The regulation, designed to aid people who are trying to limit their cholesterol intake for health reasons, is also expected to make it easier for manufacturers to put information about cholesterol and fat content on their labels. Published in the *Federal Register* last Nov. 25, the proposal clarifies the terms to be used when making cholesterol reduction claims or identifying cholesterol-free products. Further, it removes some elaborate language that had previously been required and adds information about certain types of fat. Manufacturers would have the option of using these terms on the labels of their products:

•"free" - can be used if the cholesterol content is less than 2 milligrams in each serving.

•"cholesterol" - would describe products with less than 20 milligrams of cholesterol in each serving.

•"Cholesterol reduced" or "reduced in cholesterol" - would be permitted in products that have been reformulated so that the cholesterol content has been reduced at least 75 percent from the original product. Manufacturers would have to state what the original cholesterol content was, along with that of the cholesterol-reduced version. For example, "Cholesterol reduced from 120 milligrams to 30 milligrams per serving."

For foods that have less cholesterol, but not 75 percent less, FDA's proposed regulation would allow such language as "less cholesterol" or "lowered cholesterol." Again, the cholesterol content of both the original and reformulated products would have to be stated.

If adopted, the regulation would not go into effect until FDA evaluates comments received from the public and makes any necessary changes. Also, the food industry would be allowed ample time to use up existing supplies of labels.

The regulation would not require manufacturers to include cholesterol and fatty acid (saturated and polyunsaturated fats) content on the labels of their products. This would be voluntary. However, if manufacturers do state the cholesterol content of their products, then they must provide complete nutrition information, as spelled out in FDA's current regulations, and state the amount of not only cholesterol, but also fatty acids.

Since FDA's nutrition labeling regulations were adopted in 1973, many food companies have provided nutrition information on their products voluntarily. (Nutrition labeling is mandatory only if a nutrient is added to a food or if a nutrition claim - "fewer calories," for example - is made on the label.)

When nutrition information appears on a product, the label must show the number of servings in the package, the number of calories in each serving, and the amount of protein, carbohydrates, total fat and sodium (in the order) in each serving. In addition, the label must list the percentage of the U.S. Recommended Daily Allowances of protein, five vitamins, and two minerals that are in each serving.

Under present requirements, the amount of fat is expressed in grams per serving. Manufacturers also may tell the amounts of polyunsaturated and saturated fats (fatty acids) and cholesterol in each serving, but it is not required. (See the accompanying article for a discussion of polyunsaturated and saturated fats and how they affect cholesterol levels.)

But under the proposed regulation, if a manufacturer decides to state the cholesterol content of a product, the label *would also have to tell* the amount of unpolyunsaturated fat and saturated fat. The only exception would be if the product was less than 10 percent fat or had less than two grams of fat per serving.

Although the 1973 nutrition labeling regulations permit food manufacturers to identify cholesterol and fat content, only a small number of products bear such labeling today, partly because of FDA's requirements, for a rather cumbersome label statement, which says that information about fatty acids and cholesterol content is being provided "for individuals who, on the advice of a physician, are modifying their dietary intake" of fat or cholesterol. The current proposal eliminates the requirement for that statement.

Although some experts still question the benefits to the general population of eating less fat and cholesterol, FDA

believes that research results justify a change in the regulations to permit more easily understood labeling terms.

It's also clear that the public wants more information about fat and cholesterol. (See accompanying article on food labels.)

The agency's present position, FDA said in its November proposal, "is to encourage the voluntary declaration of cholesterol and fatty acid content on labeling to assist individuals in lowering their intake of these substances, should they so desire, as well as to assist those individuals who have been medically directed to modify their intake of these substances."

FDA's long-time concern has been that labeling information and health claims made about individual foods be truthful and not misleading or confusing to consumers. The proposed regulation will give manufacturers more freedom to make claims about cholesterol content, but it also warns against improper or untruthful claims. "The manner in which health-related information is presented can directly call into play the misbranding and new drug provisions of the [Federal Foods, Drug and Cosmetic Act," FDA said in its proposal. "In the case of cholesterol, it must be clear to consumers that the consumption of a specific food is not likely to contribute significantly to a change in blood cholesterol levels without a modification of the diet to reduce the total amount of fat and cholesterol consumed. The possibility for confusion resulting from unsubstantiated or misleading health-related information on food labels provides the basis for the prohibition...of claims that a specific product in and of itself is effective in the prevention, cure, mitigation, or treatment of any disease or symptom."

Put more simply, FDA is saying that to lower blood cholesterol levels, individuals must change their overall eating habits to reduce total fat, saturated fats, and cholesterol. No single food can accomplish this, and any claim for a product that might imply this would be frowned upon by the agency.

FDA is proposing to permit the use of such terms as "cholesterol free," "low in cholesterol," "cholesterol reduced," and other appropriate language to provide clear guidelines to the food industry as well as to assist consumers. "FDA is concerned that without clear guidance, manufacturers might use the same terms on products that vary widely in cholesterol content," the agency said.

FDA selected its proposed labeling terms after examining data on some 450 food products containing cholesterol.

Almost one-fourth of the foods had less than 20 milligrams of cholesterol in a serving. Among them were skim and low-fat milk, some cheeses and yogurts made from skim and low-fat milk, and various types of bread, cereal, macaroni, crackers, and salad dressings. More than one-fourth of the foods had more than 100 milligrams of cholesterol in a serving; of these, one-third had more than 200 milligrams.

The proposed regulation is designed to help consumers select foods to reduce their cholesterol intake to below 300 milligrams a day - a level many health experts think will help reduce the risk of heart disease. Peanut butter, for example, is a product that could carry the "cholesterol-free" language proposed. The label could say: "peanut butter, a cholesterol-free food." Applesauce is also cholesterol-free and could be labeled: "Applesauce, a cholesterol-free food." But the labels on such products could not say "cholesterol-free peanut butter" or "cholesterol-free applesauce." Such careful language is necessary so that consumers are not left with the misleading impression that a particular product was especially produced to be free of or low in cholesterol.

All peanut butter and applesauce naturally have no cholesterol. In fact, all foods of plant origin are essentially cholesterol-free. These include fruits, vegetables, grains, nuts and seeds, as well as various fats made from vegetable sources. However, they do contain varying amounts of fat. (Peanut butter, for example, contains about eight grams of fat per tablespoon - when combined with other foods called for in a recipe, the prepared dish may be neither free of cholesterol nor low in fat.)

The proposed regulation stressed that it would be "extraordinarily difficult" for many people to eat only foods that were low in cholesterol - that is, those with less than 20 milligrams in a serving. In urging Americans to modify their diets, health authorities are not advising the public to completely avoid foods from animal sources, which generally contain saturated fats. As FDA's proposal said: "Most people want, and need, to include some foods from animal sources in their diet. Consequently, health-care providers try to overcome this problem by building cholesterol-restricted diets around a daily allotment of animal protein and then rounding out the diet with low-cholesterol foods."

With the help of the labeling requirements that FDA has proposed, such picking and choosing should be a lot easier.

Cholesterol Levels and Risk of Heart Disease.

Age	Moderate Risk (mg/dl)	High Risk (mg/dl)
20-29	Greater than 200	Greater than 220
30-39	Greater than 220	Greater than 240
40 and over	Greater than 240	Greater than 260

Most health experts agree that a high level of cholesterol in the blood increased a person's risk of heart disease. This chart shows the blood cholesterol levels, expressed in milligrams of cholesterol per deciliter of blood (mg/dl), above which adults of various age groups are at increased risk of heart disease. The average blood cholesterol level for U.S. middle-aged adults is 215 mg/dl. A blood cholesterol test, along with a doctor's evaluation, is needed to determine an individual's actual cholesterol level and whether changes in diet or other measures are needed to reduce that level.

Source: Nat'l Institutes of Health Consensus Development Conference, December 1984.

Food Labels: Well-Read Means Well-Fed

Food labels have become popular reading among Americans. A 1986 nationwide survey showed that about four out of five U.S. adults "pay attention" to the ingredient list, and two out of three say they use the list to avoid or limit their consumption of certain items.

The survey is the latest in a series that FDA has conducted on food labeling. (Beginning in 1984, the surveys have been done in conjunction with the National Heart, Lung, and Blood Institute.)

The survey results show that the percentage of people who read ingredient lists has been close to its current level—79 percent—for almost a decade. But use of the list to avoid or limit an ingredient has increased steadily, from 54 percent in 1978 to 57 percent in 1982, 62 percent in 1984, and 68 percent in 1986.

What most people say they are avoiding today, according to the surveys, is salt, or sodium. Forty-four percent say they're shunning sodium now—up from 14 percent in 1978.

Sodium (salt is 40 percent sodium) has been linked to an increased risk of high blood pressure in some people. FDA and other health organizations have been advising the public for several years to reduce the amount of sodium in their diets.

A coordinated campaign is now under way to alert Americans to the link between cholesterol and fat in the diet and coronary heart disease. FDA's proposed cholesterol labeling regulation will help in that regard. The National Heart, Lung, and Blood Institute is coordinating the National Cholesterol Education Program in conjunction with FDA and many other government and private-sector health organizations. The aim is to make consumers aware of the importance of making appropriate dietary changes to help lower blood cholesterol levels.

The 1986 survey found that 8 percent of those surveyed were using ingredient lists to avoid or limit their cholesterol intake. That's up from 2 percent in 1978. But there is other evidence of broader public concern over cholesterol. The 1982 survey revealed that 65 percent of those interviewed were concerned about cholesterol in their diets. Twelve percent of those surveyed had been told by doctors to reduce cholesterol intake, and 35 percent were reducing their intake on their own initiative.

If the cholesterol regulation and education campaign have the same effect on the public as the 1981 sodium labeling regulation and the education campaign it triggered, a substantial increase in public awareness of cholesterol can be anticipated.

The sodium regulation and the cholesterol proposal are not entirely similar, however. Sodium content labeling is mandatory on all foods that carry nutrition labels, which is 55 percent of the foods that come under FDA's jurisdiction. As the accompanying story notes, cholesterol labeling would be voluntary. Yet, two-thirds of the current nutrition labeling is being provided voluntarily by food manufacturers. It seems obvious that, due to growing consumer interest in diet and health, nutrition has become a popular selling tool.

Cholesterol Levels of Popular Foods.

Food Item	Cholesterol in milligrams*
Fruits, grain, vegetables	0
Scallops	53
Oysters (cooked)	45
Clams	65
Fish, lean	65
Chicken/turkey, light meat (no skin)	80
Lobster	85
Beef, lean	90
Chicken/turkey, dark meat (no skin)	95
Crab	100
Shrimp	150
Egg yolk (one)	270
Beef liver	440
Beef kidney	700

To reduce the risk of heart disease, Americans are being urged to consume no more than 250 to 300 milligrams of cholesterol per day.

*Amounts shown are for 3½-ounce portions that have been cooked, except for the egg yolk, which is the yolk of one large egg.

Source: Nat'l Institutes of Health, 1986.

An Introduction to Fats and Cholesterol

Cholesterol is an odorless, white, powdery substance found in many foods, including all food from animals (meat, eggs, milk and other dairy products). Our bodies need cholesterol for many vital functions, but the liver manufactures enough to meet these needs. Any excess we consume in our diet enters the bloodstream, and the excess can accumulate and clog the arteries, including the ones serving the heart. Heart attack and coronary heart disease can be the result.

Cholesterol is not a fat, but it is a fat-like substance, and the amount of cholesterol in our bloodstream is closely tied to the amou .t—and kinds—of fats we consume in our food. Fats in foods are mixtures of saturated and unsaturated fats. On food labels these types of fats are identified as fatty acids. Saturated fats tend to increase blood cholesterol levels in some people. In general, foods containing saturated fats are solid at room temperature. They include animal products such as beef, lamb, suet, lard and some dairy products.

There are two types of unsaturated fats: mono-unsaturated fats, which do not seem to have any effect on cholesterol levels, and polyunsaturated fats, which seem to lower blood cholesterol. Foods that contain mostly unsaturated fats are usually liquid at room temperature and are commonly referred to as oils. They are mostly from plant sources and include vegetable oils such as corn, cottonseed and safflower oils. Exceptions are coconut oil and palm oil, which contain mostly saturated fat, even though they are liquid and are vegetable oils.

(For more information about fats and cholesterol, see "A Compendium on Fats" in the March 1983 *FDA Consumer* and "On Being Too Rich, Too Thin, Too Cholesterol Laden" in the July-August 1981 *FDA Consumer*).

Oils and Fats.

Type of Oil or Fat	Percent Polyunsaturated Fat	Percent Saturated Fat
Safflower oil	74	9
Sunflower oil	64	10
Corn oil	58	13
Average vegetable oil (soybean plus cottonseed)	40	13
Peanut oil	30	19
Chicken fat (Schmaltz)	26	29
Vegetable shortening	20	32
Lard	12	40
Olive oil	9	14
Beef fat	4	48
Butter	4	61
Palm oil	2	81
Coconut oil	2	86

Many health organizations are urging Americans to reduce the amount of fat in their diets, especially saturated fat, which tends to increase blood cholesterol levels. The best form of fat in the diet is polyunsaturated fat, which tends to reduce blood cholesterol levels.

Source: Nat'l Institutes of Health, 1986.

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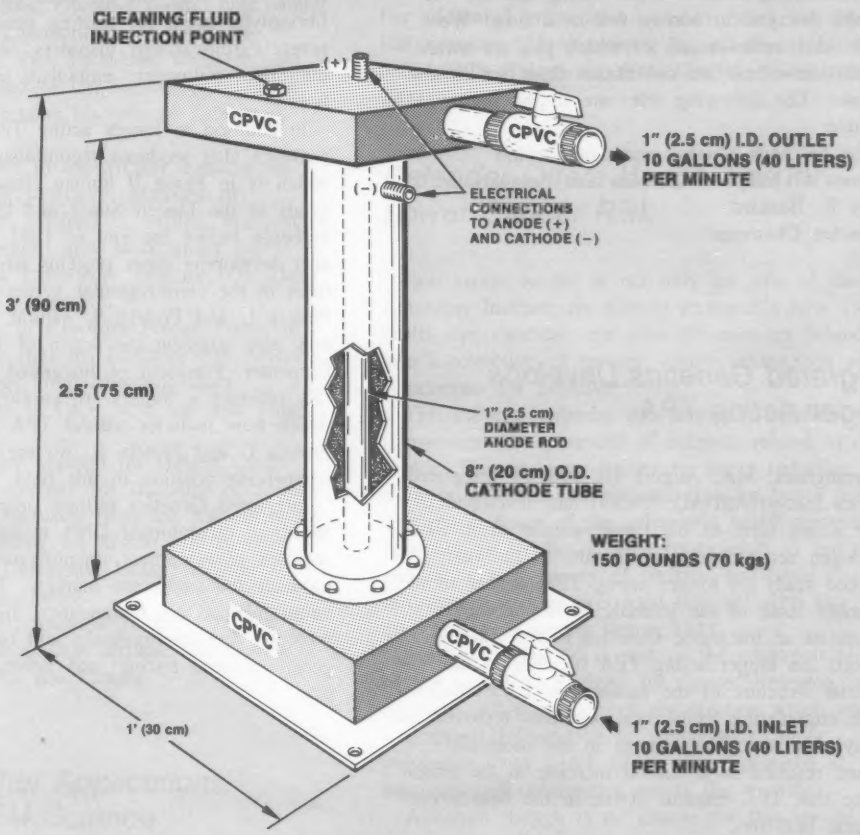
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If this cell operates at its MINIMUM capacity as stated above, it will generate the equivalent of 2,000 ppm-mg/l of a 10% liquid chlorine concentration or 20,000 ppm-mg/l at its 10 gpm (40 lpm) effluent. This concentration must be diluted 20 times since sewage requires as much as 20 ppm-mg/l of a 10% liquid chlorine residual for proper treatment. Therefore, this cell's effluent will treat; 1,000 gpm (4,000 lpm), 60,000 gph (240,000 lph) or 1,440,000 gallons (544 cubic meters) per 24-hour operation. At 5 oz. (150 ml) per minute of saline, this cell will consume about 1 kilowatt per hour! This cell's concentration and capacity increases as the saturated saline intake increases.

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If this cell operates at its MAXIMUM capacity which is 50 V DC at 100 amperes, it will consume 50 x 100 = 5,000 watts per hour. Therefore it requires a 5 KVA service. If each KWH cost 6 cents (US), the daily operating cost will be; 5 X 6 X 24 = $7.20 (US). The cost of the salt will be about $10 per day for a grand total of less than $20 per 24-hour operation.

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News and Events

IAMFES Audio Visual Library

Audio-visuals have been reviewed by a committee representing food, environmental and dairy. A few selections were made late this spring and are available for you to borrow one at a time. We solicit other audio-visuals of which you are aware. Let me know how we can obtain them for review purposes. The following titles are in the library as of mid-June:

Tests for Milk Quality and Composition

Causes of Milkfat Variations and Depressions

Sidney E. Barnard
Committee Chairman

Integrated Genetics Develops Longer Acting TPA

Framingham, MA, August 16, 1987 -- Integrated Genetics Inc. (NASDAQ: INGN) has developed a longer acting form of the cardiovascular drug, tissue plasmiogen activator (TPA). Results of the first published study on longer acting TPA appear in the September issue of the journal, *Bio/Technology*.

Scientists at Integrated Genetics report that they produced the longer acting TPA by altering the molecular structure of the natural material. Using protein engineering techniques, scientists removed one glycosylation site. This change in the molecular structure resulted in a tenfold increase in the length of time that TPA remains active in the bloodstream (systemic half-life).

TPA is a naturally occurring protein in the human body. When administered to patients suffering from myocardial infarction (heart attack), it is highly effective in dissolving blood clots. In addition, it may be effective in treating pulmonary embolism and deep vein thrombosis. By increasing the molecule's half-life in the bloodstream, it should be possible to administer the drug in lower doses and in a single injection, rather than in continuous intravenous solution. This may be particularly valuable in avoiding bleeding complications. Longer acting TPA may also reduce the incidence of re-occlusion or reclotting, a condition which occurs in a significant number of cases treated with natural TPA. Extensive testing must be conducted before the drug will be available for wide-spread clinical use. It is expected that clinical trials of this molecule could begin as early as 1988.

David Livingston, Ph.D., Staff Scientist at Integrated Genetics and principal author of the study, stated that "By using the techniques of protein engineering in conjunction with our extensive knowledge of the structure and function of TPA, we have been able to redesign the naturally-occurring protein to improve its therapeutic properties. Longer acting TPA may fill the need for an improved fibrinolytic agent for treating patients suffering from severe cardiovascular disorders, including myocardial infarction, pulmonary embolism and deep vein thrombosis."

In addition to longer acting TPA, Integrated Genetics also produces recombinant natural TPA, which is in Phase II human clinical trials in Japan. Trials in the United States and Europe are expected to begin before the end of 1987. The Company is also developing other proteins which play important roles in the cardiovascular system. These include Protein C and Protein S, natural anti-coagulants that may also augment the action of TPA. Robert J. Carpenter, President of Integrated Genetics, stated "By offering a 'family' of cardiovascular products, which now includes natural TPA, longer acting TPA, Protein C and Protein S, we are in a unique competitive position in this field."

Integrated Genetics utilizes proprietary techniques based on recombinant DNA technology in the research, development, manufacture and marketing of products for healthcare markets. The Company's target markets are therapeutics, including cardovascular proteins, fertility hormones and blood growth factors; genetic disease testing; and infectious disease diagnostics.

Water Quality Poster Available from Millipore Corporation

A free water quality poster is now available from Millipore Corporation. The poster describes seasonal changes which can affect feed water purity and a water system's operaton. Seasonal action steps are given to correct problems associated with changes in water quality. For example, algae and bacterial levels in the water supply may reach peak levels in the fall, and the frequency of bacteriological counts should be increased to monitor water quality.

For your free water guide, call Technical Services at toll-free 800-225-1380. In Massachusetts call 617-275-9200; or write Millipore Corporation, 80 Ashby Road, Bedford, MA 01730.

Dr. John H. Silliker Retires

Silliker Laboratories, Inc., a leading food testing laboratory, announced several changes in its corporate structure in response to the recent retirement of its founder, Dr. John H. Silliker.

Dr. Damien A. Gabis, Olympia Fields, was named President of Silliker Laboratories, Inc. and the position of Executive Vice President, formerly held by Gabis, was awarded to Dr. Russell S. Flowers, Frankfort, who also retains his title of Laboratory Director.

New positions added to the Silliker Laboratories staff include Mr. Tim DonLevy, Manager of Microbiology and Mr. Michael C. Miller, Manager of Chemistry, both of whom now work under the guidance of Associate Laboratory Director, Dr. Dave Evanson, Elk Grove Village.

DonLevy, formerly of ConAgra Frozen Foods in Russellville, Arkansas, has his Bachelor's of Science degree in Microbiology from Memphis State University. He resides in Crete with his wife Pam, and son Paul.

Miller, former senior chemist for Helene Curtis Industries, Chicago, obtained his Bachelor of Science degree in Forensic Chemistry from the University oF Illinois and is completing his Master's of Science degree at Roosevelt University. Miller lives in Chicago with his wife Debra.

Silliker Laboratories, founded 20 years ago in Chicago Heights, Illinois, has affiliate laboratories in New Jersey, California and Canada.

Free Karl Fischer Applications Manual from EM Science

CHERRY HILL, NJ -- A free applications manual for Karl Fischer moisture determinations is now available from EM Science.

The 108-page text details the proper procedures and sampling techniques for accurately measuring moisture content in solid, liquid, and gas samples, using the EM Science AQUASTAR® systems with no-odor, Pyridine-Free Karl Fischer Reagents.

Measurement examples and operating parameters for more than 350 chemical compounds are listed. Use of the AQUASTAR system with halogenated hydrocarbons, amines, ketones, aldehydes, oils, plastics, pharmaceuticals, food stuffs, dairy products, and many more applications is discussed.

The comprehensive AQUASTAR Applications Manual aids the analysts in solvent selection, sample handling, and reducing sources of error. The indirect Karl Fischer titration method, which utilizes special evaporation accessories for analyzing troublesome samples that can't be directly measured, is also explained in detail.

EM Science is a division of EM Industries, Inc. and an Associate of E. Merck, Darmstadt, Germany, suppliers of high-quality analytic instrumentation and high-purity reagents since 1668. Products are available through authorized EM Science stocking-distributors. For additional information, contact: Marketing Dept., EM Science, 111 Woodcrest Rd, Cherry Hill, NJ 08034-0395. Telephone: 800-222-0342; in NJ 609-354-9200.

Calendar Offers Health Tips for Lower Cancer Risk

Feel Great in '88 is not only the title of the American Institute for Cancer Research's new 1988 health tips calendar, but also the message behind this year's collection of recipes, health information and suggestions for healthier living.

This colorful calendar provides easy-to-follow information on a number of subjects related to daily health. This includes articles on stress reduction, on exercise and even on gifts to give for better health. The major focus of the calendar's health contents, however, is on diet and its relationship to cancer, and includes a variety of recipes, nutritional information and general food tips, all with an emphasis on lowering cancer risks.

Feel Great in '88 is part of the education program of the American Institute for Cancer Research, a national, non-profit cancer organization which provides educational information on cancer and cancer prevention, and which funds cancer research at hospitals and universities across the country.

Although though is no charge for this special calendar, the Institute is requesting a donation, if possible, to help support its research and education programs. A copy of the calendar may be order by writing to the American Institute for Cancer Research, Dept. 88, Washington, D.C. 20069. Telephone: 703-237-0159.

US EPA

The US EPA has just established a new hotline to provide technical or general information to anyone concerned about drinking water quality. Effective July 1, 1987, the toll free hotline will be staffed by regulatory professionals from EPA Office of Drinking Water, Monday through Friday from 9:00 a.m. to 5:00 p.m. Eastern Time. Callers during other hours can leave a message and the call will be returned within 24 hours. The EPA hotline number is 800-426-4791.

Pesticide Poisoning Statistics Exaggerated by Farmworkers' Group

In their current campaign for table grape boycott, Cesar Chavez and the United Farmworker's Union (UFW) have grossly overstated the number of occupational illnesses caused by pesticides, according to an article by Pamela Jones in the May/June issue of ACSH NEWS & VIEWS, a publication of the American Council on Science and Health (ACSH), an independent scientific organization.

"Chavez and his followers have aroused concern with their claim that 300,000 occupational pesticide-related illnesses occur among farmworkers each year. But this number does not have a sound scientific basis," Ms. Jones said.

"The 300,000 figure was ostensibly derived from a 1985 report of the World Resource Institute," she explained. "But the authors of that report say that their work has been misused. They intended to point to the lack of data on farmworker exposure, rather than announce a definitive number. As they themselves have stated, any small deviation in the assumptions used to derive the 300,000 figure would significantly change the number. The assumptions in question were probably wrong when they were made and are certainly outdated and incorrect today."

The Environmental Protection Agency (EPA) estimates the true number of occupational pesticide-related illnesses in the U.S. at 10,000 per year, the ACSH NEWS & VIEWS article states.

"For the sake of the UFW's political goals, the public has been drastically misinformed about the extent of occupational pesticide poisoning," said ACSH Executive Director Dr. Elizabeth M. Whelan. "It is always unfortunate when false perceptions and junk science are used to support political agendas, as seems to be the case here."

"Chavez wants grape growers to discontinue use of five pesticides and he wants to pressure the grape industry into pressuring California Governor George Deukmejian to make changes in the state's Agricultural Labor Relations Board," she continued. "These political goals appear to be the ultimate motivation for Chavez' disturbing crusade on the pesticide issue. In a society which is often doubtful, if not scared, about chemicals, the UFW knows which button to push."

The American Council on Science and Health is an independent, nonprofit consumer education association promoting scientifically balanced evaluations of food, chemicals, the environment, and health.

Copies of ACSH NEWS & VIEWS can be obtained from ACSH, 47 Maple St., Summit, NJ 07901.

"Food Talk" Newsletter Is A Novel Sanitation Training Aid"

"Food Talk" is the name of a stock newsletter Charles Felix Associates has designed for local public health departments and food companies to use as their own newsletter in educating food handlers. The four-page, two-color quarterly publication will carry articles designed to instruct and motivate food service workers regarding sanitation principles: handwashing, temperature control, personal hygiene, food storage, thawing, bulk foods, sanitization, bacteria, foodborne illness, and the like.

The idea of the newsletter is to enable public health authorities and industry quality control managers to communicate more frequently with their clientele, according to the editor, Charles Felix. "A quarterly newsletter keeps the operators in a given jurisdiction aware of their food safety responsibilities; reinforces the principles they learned in training courses; gives them an opportunity to educate their workers; and reminds them that the health department or the quality control department is near and has a genuine interest in their operations," says Felix.

The annual feed for "Food Talk" is $110, giving subscribers the right to use the copyright newsletter as their own or as a clipsheet for use in existing newsletters. In addition to the subscription fee, a printing charge on quantity orders is $12.50 per 100 copies. Agencies which prefer to do their own printing may purchase negatives or veloxes for that purpose. A sample copy of "Food Talk" is available from Charles Felix Associates, PO Box 1581, Leesburg, VA 22075. Telephone: 703-777-7448.

Food Contains Many Naturally Occurring Carcinogens

Naturally occurring cancer-causing substances in food are more numerous, more widespread, and in many cases more potent than man-made carcinogens in food, according to the report *Does Nature Know Best? Natural Carcinogens in American Food*, published by the American Council on Science and Health (ACSH), and independent scientific organization.

"Many people assume that all 'natural' substances in food are safe, while all 'man-made' chemicals are suspect. But there is no evidence to support this belief. Indeed, the scientific facts completely refute it," said Dr. Elizabeth M. Whelan, Executive Director of ACSH.

"A large number of substances that occur naturally in foods have been found to be cancer-causing when evaluated by the criteria customarily used to assess the cancer-causing potential of man-made substances,"

she said. "Many more carcinogens are produced by cooking and by the actions of microorganisms."

Examples of natural carcinogens in food cited in the ACSH report include:

Hydrazines - found in mushrooms.

Tannins - found in coffee, tea, and red wines.

Ethyl carbamate - found in bread, yogurt, soy sauce, beer and wine.

Allyl isothiocyanate - found in mustard, horseradish, broccoli, and cabbage.

Benzo(a)pyrene - produced during the cooking of meat.

Aflatoxin - produced in microbial action in peanuts and grains.

It is not necessary or practical for consumers to stop eating foods that contain natural carcinogens, ACSH said. Current evidence does not indicate that these substances have a substantial impact on cancer incidence in the U.S., according to ACSH. Moreover, ACSH noted, natural carcinogens are present in so many foods that it would be unrealistic to attempt to avoid exposure to all of them. Variety in the diet is the best protection, since it minimizes the chance that a person will be exposed to any one potentially harmful substance in quantities that overwhelm the body's defense mechanisms, the report states.

"It's time for a change in our government's approach to regulating carcinogens in foods," said ACSH Associate Director Dr. Edward G. Remmers. "There is a need for a new perspective that emphasizes a substance's carcinogenic potency and the level of exposure to it rather than its natural or artificial origin. Regulatory priorities should be set on the basis of clearly distinguishing the risks that matter from the multitude of tiny ones. There is also a need for a more even balance between the evaluation of natural substances and that of man-made substances in our food supply. Extensive and expensive testing of synthetic chemicals is a great waste of scarce scientific resources if more potent natural materials are unrecognized and ignored as potential contributors to human disease."

The American Council on Science and Health is an independent, nonprofit consumer education organization promoting scientifically balanced evaluations of food, chemicals, and environment, and health.

To obtain a copy of *Does Nature Know Best?*, send a self-addressed, stamped (66 cents postage), business-size (#10) envelope to Natural Carcinogens Report, ACSH, 47 Maple St., Summit, NJ 07901.

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Now you can duplicate commercial grade textured quality cheese on a control-lable, small volume basis. The 640 is a faithful reproduction of our full sized machines with their unsurpassed reliability.
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Audio Visuals in the IAMFES Library as of July 24, 1987

Legal Aspects of the Tampering Case - (about a 25-minute, 1/2" videocassette). This was presented by Mr. James T. O'Reilly, University of Cincinnati School of Law at the fall 1986 Central States Association of Food and Drug Officials Conference. He emphasizes three factors from his police and legal experience - know your case, nail your case on the perpetrator, and spread the word. He outlines specifics under each factor. This should be of the greatest interest to regulatory sanitarians of federal, state and local agencies. (1987)

Psychiatrics Aspects of Product Tampering - (about a 25 minute, 1/2" videocassette). This was presented by Emanual Tanay, M.D. from Detroit, also at the fall 1986 conference of CSAFDO. He reviewed a few cases and then indicated that abnormal behavior is like a contagious disease. Media stories lead to up to 1,000 similar alleged cases, nearly all of which are false. Tampering proof packaging and recalls are essential. Tampering and poisoning are characterized by variable motivation, fraud and greed. Law enforcement agencies have the final responsibilities. Tamper proof containers are not the ultimate answer. (1987).

Producing Milk of Good Quality and Flavor - (114 slides-tape-script-25 minutes). The steps and corrective measures necessary to produce quality milk with good flavor are outlined. It is directed at dairy farmers, field staff, milk haulers and youth. (Penn State-1982).

The Farm Bulk Milk Hauler - (135 slides-tape-script-30 minutes). This set covers the complete procedure for sampling and collecting milk from farms. Each step is shown as it starts with the hauler entering the farm lane and ends when he leaves the milkhouse. Emphasis is on universal sampling and automated testing. Funds to develop this set were provided by The Federal Order #36 Milk Market Administrator (Penn State-1982).

Controlling Volumes and Fat Losses - (110 slides-tape-script-30 minutes). Keeping milk volume and product loss from farm to supermarket of fluid dairy products is discussed. This set was done with the cooperation of the dairy industry who reviewed the script and provided opportunities to take pictures. It is designed to be used by milk plants for their processing personnel, regulatory representatives, field staff and milk haulers. (Penn State-1982).

Causes of Milkfat Test Variations and Depressions - (140 slides-tape-script-30 minutes). This set illustrates the many factors involved in causing milkfat test variations or depressions in your herd, including feeding, management, stage of lactation, age of samples, handling of samples, and testing producers. The script was reviewed by field staff, nutritionists, laboratory personnel and county extension staff. It is directed to farmers, youth and allied industry. (Penn State-1982).

Tests for Milk Quality and Composition - (140 slides-tape-script-25 minutes). This set shows and describes in simple terms the various quality tests performed on milk samples. These include bacteria, antibiotics, freezing point, pesticides, somatic cells, flavor and others. The purpose, desirable results, and ways to improve poor results are outlined. It was developed for farmers, youth, field staff and allied industry. (Penn State-1983).

The How and Why of Dairy Farm Inspections - (110 slides-tape-script-15 minutes). This was developed at the request of seven northeast dairy cooperatives and with their financial support. Emphasis is on clean cows, facilities and equipment and following proper procedures. Regulatory agencies cooperated in reviewing the script and taking pictures. This was developed for farmers, youth and allied industry. (Penn State-1984).

Processing Fluid Milk - (140 slides-script-tape-30 minutes). It was developed to train processing plant personnel on preventing food poisoning and spoilage bacteria in fluid dairy products. Emphasis is on processing procedures to meet federal regulations and standards. Processing procedures, pasteurization times and temperatures, purposes of equipment, composition standards, and cleaning and sanitizing are covered. Primary emphasis is on facilities such as drains and floors, and filling equipment to prevent post-pasteurization contamination with spoilage or food poisoning bacteria. It was reviewed by many industry plant operators and regulatory agents and is directed to plant workers and management. (Penn State-1987).

Other food and environmental audio-visuals should be available soon. It is just the matter of time to obtain and review commercial slide/cassette tape sets.

Sidney E. Barnard
Chairman Audio Visual Library

If you are interested in checking out any of our audio-visuals contact: Margie Marble, Associate Editor, Dairy and Food Sanitation, P.O. Box 701, Ames, IA 50010, 800-525-5223.

Filter-Flo SANITARY MANHOLE VENT

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Eliminates Contamination from Dust, Insects and Foreign Matter . . . with Tanker Manhole Completely Open While Unloading.

- Takes only seconds to attach.
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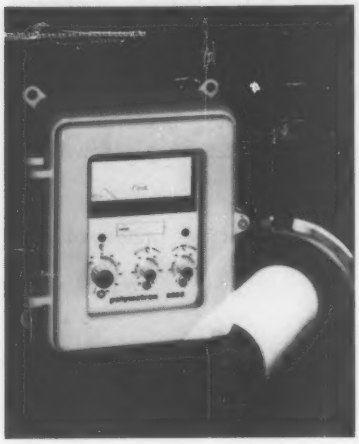
New Product News

The products included herein are not necessarily endorsed by Dairy and Food Sanitation.



"Control of Concentration and Phase Separation by Measurement of Conductivity with the POLYMETRON 8330 Multielectrode Probe."

• The POLYMETRON 8330 Multielectrode Probe was designed for control of cleaning and rinsing cycles in various food processes. The Multielectrode probe offers the advantages of insensitivity to dirt deposits and encrustations on the measuring surface and the ability to measure high levels of ionic concentrations.

Typical systems in food processing control the following:

(1) Water pre-rinse.

(2) Alkaline wash cycle in which phase separation results in the discharge of the water phase to the water treatment plant and the return of the alkaline phase to the storage tank.

(3) Water rinse in which phase separation returns the alkaline phase to the storage tank until the conductivity reaches a minimum preset value, the remaining alkaline phase is then diverted to the water treament plant.

(4) Acidic rinse in which phase separation of acid and water is controlled.

(5) Water post-rinse in which phase separation of acid and water is controlled.

The advantages of measuring and controlling conductivity in these cycles are the following:

(1) Maintaining constant strengths of cleaning acids and alkalais which results in more efficient cleaning.

(2) Optimization of phase separations of acid/water and acid/alkalai systems.

(3) Minimization of chemical loss.

(4) Prevention of overloading the water treatment plant.

For more information, contact: Strandberg Engineering Laboratories, Inc., 1001 So. Elm St., Greensboro, NC 27406. Telephone: 919-274-3775.

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Subminiature Temperature Recorder for Dairy Quality Control

• New subminiature ±1% accuracy Telatemp Model 310 self-adhesive temperature recorder features three indicator windows which turn irreversibly black when exposed to the calibrated temperature. Rates temperatures are printed at the sensor window in °F. Ranges in 10° increments from 100°F to 500°F. Ideal for use in all processing and manufacturing industries to record overheat for preventive maintennance, test, quality control, laboratory research, production, and energy conservation.

Subminiature 0.38" x .75" size permits installation on parts and in areas where other recording instruments prove impractical. Nominal thickness 0.01". Price $1.15 each in 100 quantity. Delivery from stock.

For FREE SAMPLE and literature write Telatemp Corp., P.O. Box 5160, Fullerton, CA 92635. Telephone: 800-321-5160, except CA: 714-879-2901.

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Special USDA-Approved Coatings Solve Equipment Sanitation, Maintenance Problems

• New "Spotlight Report" containing 6 pages of profusely illustrated case histories describing how USDA-approved high technology coatings have helped solve equipment sanitation and maintenance problems in food and drug processing and packaging has been issued by General Magnaplate Corp., Linden, NJ.

The new brochure illustrates and describes how Magnaplate's "synergistic coatings" have enabled leading food and drug manufacturers and packagers to meet the challenge of increasingly stringent enforcement of sanitation codes placed on production equipment by federal agencies. Eleven on-site photographs and detailed text provide analyses of typical problems/solutions at the plants of Sealright, Nabisco, DCA Food, Squibb, Circle Design, Cozzoli Machine, and many other industry leaders.

Copies of the new "Spotlight Report" are available from General Magnaplate Corp., 1331 U.S. Route 1, Linden, NJ 07036.

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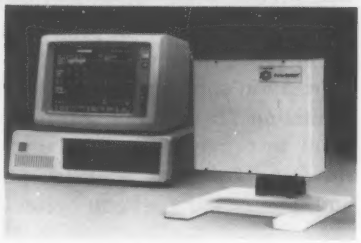

New Low-Cost Spectrocolorimeter for Quality Control

• RESTON, VA -- HunterLab announces the availability of the 45° /0° ColorQUEST™☆ a low-cost spectrocolorimeter that employs 45° illumination/0° viewing geometry, which best correlates with visual assessment. It can be tailored to meet the specific requirements in your industry.

This new ColorQUEST system, consists of the optimal sensor, quality control software and a choice of IBM® or IBM-compatible computer for data processing. It provides fast, accurate color measurement data and can be purchased for the same price as less sophisticated colorimeters.

ColorQUEST is available with a variety of color scales, illuminants and other optional application-specific software. In addition to placing the sensor in its standard horizontal position, an optional stand can mount the sensor either port up, or port down.

HunterLab manufacturers color and appearance measuring instrumentation designed to meet a wide variety of industrial applications, ranging from incoming inspection of raw materials to quality control of finished goods.

For additional information or a demonstration on the NEW ColorQUEST 45° /0° Spectrocolorimeter write to HunterLab, 11491 Sunset Hills Rd., Reston, VA 22090. Telephone: 703-471-6870.

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General Magnaplate

Spotlight Report
Food & Drug Processing-Packaging

Special USDA-Approved Coatings Help Solve Equipment Sanitation, Maintenance Problems

Series 5000 Electronic Balance Line

• Scientech has added two new dual range and three single range models to their 5000 Series electronic balance line. The dual range line now features models with capacities of 0-50.000/0-500.00, 0-500.00/0-5000.0, 0-200.000/0-2000.00 grams and our analytical model with 0-20.0000/0-200.000 grams. In addition to the dual range capability of these balances, autoranging and Scientech's Floating Tare (TM) are standard features offered, providing low range resolution throughout the entire capacity of the balance. The three new single range models have capacities of 0-500.00, 0-2000.00 and 0-5000.0 grams. Other standard features include seven selectable units of measure, autocalibration, below balance weighting, custom checkweighing and parts counting.

Designed to run cool, the 5000 Series uses an easy to read LCD display and remote power supply that eliminate heat build up with the balance that could cause drift or instability. The balance case also features adjustable feet, level bubble and a built-in security bracket. Optional accessories include multi-functional data input keyboard, analytical windscreen (standard with the analytical model 5220), RS232, Centronics and analog outputs.

For more information, a brochure and pricing on the Scientech 5000 Series Balance line, contact: Scientech, Inc., 5649 Arapahoe Ave., Boulder, CO 80303. Telephone: 800-525-0522.

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Hill Top Offers a 56-Hour Method for Detection of Salmonella in Foods

• Hill Top Research, Inc., of Cincinnati, Ohio, now offers GENE-TRAK® , a 56-hour method for detecting Salmonella in foods. GENE-TRAK® , a sophisticated method of DNA hybridization and identification developed by Integrated Genetics, Inc., requires only 52-56 hours to obtain positive and negative results. Standard methods today require a minimum 4 days (96 hours) to obtain negative results, and the procedure can go to 7-10 days to detect positives.

Studies have been conducted evaluating the GENE-TRAK® procedure against the FDA/AOAC (BAM Culture Method) procedure. Initial results indicate that the GENE-TRAK® procedure produces fewer false negatives (1.8% for GENE-TRAK® and 5.0% for BAM).

Hill Top Research, Inc., is a life sciences laboratory offering dermal research and testing services, clinical project management, clincial pharmacology, toxicology, sensory analysis, consumer testing, and analytical chemistry, as well as industrial and environmental microbiology. Hill Top's experienced technical staff has conducted microbial evaluations for over 34 years for the Food, Drug, Consumer and Household Products industries.

For more information, contact: Joel I. Ivers, The Hill Top Companies, PO Box 429501, Cincinnati, OH 45242. Telephone: 513-831-3114.

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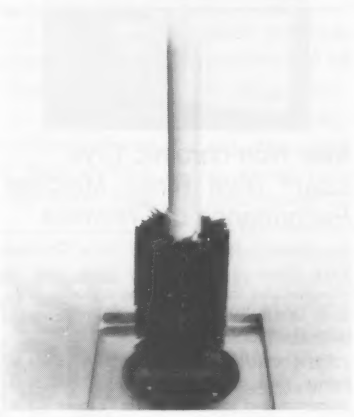

New Sparta Floor Drain Brush Offers Improved Sanitation

• Sparta Brush Company has introduced a new brush designed for easier, more thorough cleaning of floor drains and floor drain sinks to promote better food and dairy plant sanitation.

The floor drain brush features tough polypropylene bristles in a non-absorbent, plastic block. The bristles are color-coded black to help keep the brush segregated from food preparation brushes. This helps avoid contact with the contamination of food preparation areas.

The Sparta Floor Drain Brush is available in four diameters: 3", 4", 5" and 6". Handles are ordered separately and are available in 36", 40" and 60" lengths. The available combinations ensure the proper brush for virtually every floor drain application.

Proper use of the floor drain brush is especially important in food and dairy plant environments where finished product contamination with Listeria monocytogenes has been traced to "post-pasteurization."

The recommended guidelines to reduce the possibility of contamination include brush segregation and the frequent cleaning and sanitation of floor drains.

For free literature on the new floor drain brush, and other quality Spartaproducts, call or write today.

For further information, contact: Mr. Jack Horner, Director of Marketing, Sparta Brush Co., Sparta, WI 54656. Telephone: 1-800-356-8366.

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"Chemical Safety" and "Safe Chemical Handling Parts I & II"

• Industrial Training, Inc. announces the introduction of our Chemical Safety Library which consists of two programs; "Chemical Safety" and "Safe Chemical Handling Parts I & II."

These programs provide detailed information on chemical dangers and outline acceptable procedures for safe, proper handling of chemicals.

"Chemical Safety" is a program which will assist in meeting the requirements of the federal "Right to Know" law. It is designed to familiarize employees with the physical and health hazards of working with chemicals. Measures used to protect against chemical hazards are covered and program objectives insure understanding of chemical labels. Material Safety Data Sheets, and the detection of the presence of hazardous chemicals.

"Safe Chemical Handling I & II" is a two part program which is more detailed than "Chemical Safety." It is designed to fulfill the general training requirements of the federal "Hazard Communication" or "Right to Know" law concerning hazardous chemicals. Part I provides a thorough working knowledge of chemicals and their dangers so that the physical and health hazards may be avoided. Part II emphasizes the interpretation, understanding, and use of Material Safety Data Sheets.

Training Solutions from ITI are preferred because we offer high quality, comprehensive training programs designed to help protect the health and safety of employees and comply with federal chemical safety laws. All programs are easy to use, cost effective, and available in slide/cassette or popular video formats.

For more information call 1-800-253-4623 outside of Michigan. In Michigan call collect 616-245-1185, or contact: Industrial Training, Inc., PO Box 7186, 2023 Eastern Ave., Grand Rapids, MI 49510.

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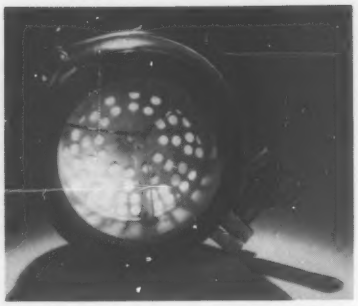

Vac-Saf™ Sanitary System

• BS&B Safety Systems has developed a new line of low pressure rupture disks designed to meet the stringent sanitary standards of 3A.

The two-way relief Rupture Disk Assembly consists of a VKB Rupture Disk and a KB-C Safety Head. The VKB Disk provides pressure relief for ultra low vacuum and positive pressure applications. The KB-C Safety Head features a quick disconnect sanitary fitting. This sanitary system is available in sizes 2 inch to 8 inch and pressures from 4 inch water column (vacuum) to maximum 200 psig (positive).

Standard materials are stainless steel.

Fore a FREE brochure and application data, contact: BS&B Safety Systems, Inc., PO Box 470590, Tulsa, OK 74147-0590. Telephone: 918-622-5950.

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Superior Wastewater Treatment

• The Regional Municipality of Niagara tests clearly show that the Rotating Biological Disk (RBD) is a superior form of treatment.

During the food processing season there are several abrupt changes in the feed characteristics entering the regional plant. The RBD was operated in parallel with several versions of activated sludge systems. The RBD demonstrated the ability to accept short-time peek organic loading without any deterioration in the effluent quality. Little operator attention was required to the RBD units as compared to the pilot scale activated sludge system. It was also found that RBD process does not result in serious sludge settling problems from a filamentous culture, as was found in the activated sludge process.

The results of the pilot scale test clearly illustrated that the activated sludge system could not adequately respond to the dramatic changes in feed quality experienced during the test period. During this same period the RBD system responded with only minimal impact from the abrupt changes in feed concentration. Final selection of the RBD system as the most applicable secondary process was not a matter of comparing effluent quality but rather an observation of the inability of the activated sludge system to survive the waste loading.

For more information on RBD's contact: CMS Rotordisk, Inc., 5266 General Rd, Unit 12, Mississauga, Ontario, Canada L4W 1Z7. Telephone: From U.S.A. 1-800-387-3225 or Canada 416-625-8916.

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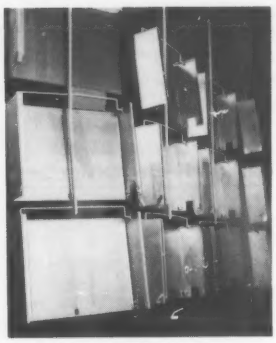

New Non-chromic Crys-Coat® Ultra Rinse Matches Performance of Chromics

• Berkeley Heights, NJ -- New CrysCoat Ultra Rinse, a non-chromic final rinse for phosphatizing that matches the corrosion resistance of chromic rinses, has been introduced by Oakite Products, Inc.

CrysCoat Ultra Rinse is a liquid, mildly alkaline rinse that can be used on steel, aluminum and galvanized steel. It does not require rinsing. It can be used over a variety of phosphatizing treatments, and has a bath life that exceeds other non-chromic products by 3 to 5 times. CrysCoat Ultra Rinse is non-hazardous in use and, as delivered, can be neutralized and disposed of in accordance with federal, state and local regulations.

CrysCoat Ultra Rinse is compatible with most modern paint and coating systems, including waterborne, solvent-based and epoxy powders. Pre-testing of the CrysCoat Ultra Rinse system with paint systems in recommended. In the phosphatizing process, CrysCoat Ultra Rinse is used following a fresh water rinse. It is used at low pressure in spray washers at temperatures from ambient to 140°F. Tank application may also be used. Processed parts may be air dried or oven dried, following forced air, to remove moisture pockets.

Technical data, physical test results and additional information are available from Oakite Products, Inc., 50 Valley Road, Berkeley Heights, NJ 07922. Telephone: 800-526-4473.

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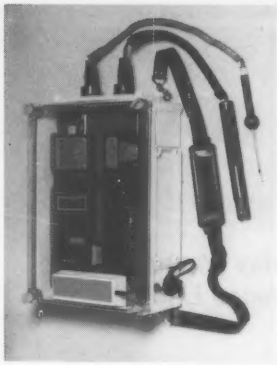

Environmental Datalogging

• A new Air velocity, Relative Humidity and Temperature logging instrument introduced by Solomat Instrumentation is designed for use in difficult environments. Capable of measruing the three parameters on automatic sampling rates or at the push of a button, the instrument is completely portable and enclosed in a waterproof polycarbonate case. Unit is battery powered and can store up to 5000 readings, left unattended for up to 10 weeks. Stored information can be downloaded to a computer or directly to a printer. Ranges are 2 to 8000 ft/min for Air Velocity, O to 100% for Relative Humidity and -30 to 300° F for temperature.

For more information, contact: Richard T. Stonier, National Sales Manager, Solomat Instrumentation, 652 Glenbrook Road, Stamford, CT 06906. Telephone: 203-348-9700.

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Total Sulfur Results in Seconds

• Houston, TX, August 1987. Antek Instruments announces the availability of the Pyrofluorescent™ Sulfur Systems. These instruments yield accurate, precise analyses of total sulfur content in solid, liquid, and gaseous samples. They cover an analytical range from ppb to 50%, and produce final results in 30 seconds to 10 minutes.

Samples may be introduced by microliter syringe, quartz sample boat, or gas syringe. An optional Gas/Liquid Sampling Inlet System is also available for introduction of gases or liquified gases into the system. The initial oxidative pyrolysis step eliminates the need for lengthy sample preparation in many cases.

Typical samples that can be analyzed include coal, petroleum liquids, greases or residuals, corn syrup, edible oils, processed foods, and LPG or other hydrocarbon gases.

For more information, contact: Mary Jo Martin, Antek Instruments, Inc., 6005 North Freeway, Houston, TX 77076. Telephone: 713-691-2265.

Please circle No. 270 on your Reader Service Card

Book Review

Analysis of Food Contaminants, Edited by John Gilbert, Elsevier Applied Science Publishers, London and New York, 1984, 386 pages.

The aim and hope of this text as expressed by the author, John Gilbert, was to provide a starting point to introduce important new developments for analytical chemists who conduct food contamination analysis tests. There are seven chapters in the text, each written by analytical food chemists from the United Kingdon, Federal Republic of Germany and the United States. Each of the chapters is well written, illustrated and contains many tables and charts to supplement the written text.

The first chapter of the book thoroughly reviews size exclusion and gel chromatography applications to the clean up of food samples for comtaminant analysis. Because sample clean up consumes considerable time in determining trace levels of organic species, it is important for the chemist to utilize automated methods and computers for subsequent data handling. The chapter provides 203 references in this area.

The second chapter deals with the very important area of measuring veterinary drug residues in farm animals, meat and meat products. The use of immunoassay techniques to accomplish this task is discussed. Empahsis centers on he radioimmunoassay, enzyme immunoassay and extraction of drugs from tissues before the immunoassay analysis.

Chapter three provides an interesting discussion of analysis of food contaminants by headspace gas chromatography (HSGC). Proper calibration procedures are discussed to insure good quantitative results. Contamination of foods and beverages by packaging material migration is reviewed. A discussion of "multiple headspace extraction" (MHE) concerning solid samples is presented.

The fourth chapter deals with the measurement of trace metal constituents in foods. The author discusses the major advances in the analytical technology involving measurement of trace metals during the last 20 years. Several instrumental elemental determination methods utilizing colorimetry, emission spectroscopy, atomic absorption spectrometry, x-ray fluorescence and electron probe spectroscopy, activation analysis, electrochemical methods and other analytical techniques are presented.

Chapter five discusses the analysis of mycotoxins in foods utilizing high performance liquid chromatography and some other chemical quantification methods. As we all know, the presence of mycotoxins in our food presents serious health hazards. The importance of sampling for mycotoxins is well established. This chapter discusses several methods of analysis for mycotoxins including thin layer chromatography (TLC), high performance liquid chromatography (HPLC), gas-liquid chromatography (GLC), immunoassary, high performance thin layer chromatography (HPTLC), fluorotoxinmeter and others.

The sixth chapter develops the use of mass spectrometry-selected ion monitoring in confirmation and quantification of trace organic food contaminants. The author provides a considerable number of recent reference resources in his thorough review of this subject.

The final chapter in the book reviews measurement of N-Nitrosamines in foods using chemiluminescence methods. Gas chromatography-thermal energy analyzer (GC-TEA) and high performance liquid chromatography-thermal energy analyzer (HPLC-TEA) methods are reviewed in great detail. Also an overall evaluation of the use of chemiluminescent detectors for analysis of N-Nitrosamines in food samples concludes the chapter.

This book is an excellent reference for the review of current analysis methods used for detection of food contaminants. The book would serve as a handy reference to any food scientist and sanitarian interested in up-to-date food contamination analysis practices. There are over 800 excellent references cited in this book.

Dr. Vay Rodman
Assistant Professor
Department of Safety Studies
University of Wisconsin-Whitewater

FIRST ACTION AOAC APPROVAL

has been received by the BioControl Salmonella 1-2 TEST™ for the rapid testing of *salmonella* in all foods.

■ Accurate ■ Fast
■ 1-2 minute set-up

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BIOCONTROL™
BioControl Systems, Inc.
21414 68th Avenue South,
Kent, WA 98032

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The Microbiology of Poultry Meat Products Edited by: R.F. Cunningham and N.A. Cox, Academic Press Inc., Orlando, FL 1987 359 pages.

The Microbiology of Poultry Meat Products is a single, comprehensive, and authoritative text on the subject of poultry sanitation. Editors F.E. Cunningham and N.A. Cox have accomplished the difficult task of presenting a somewhat technical subject in a manner that can be used by both the experienced and novice sanitarian.

For those without an extensive background in food microbiology introductory chapters provide a firm foundation. Chapter Two, Types of Microorganisms, written by Daniel Y.C. Fung, is an excellent review of basic food microbiology as well as an introduction to advance topics and concepts.

Poultry processing from the live bird on the farm through scalding and evisceration is described with discussions on the microbial population at each processing point. One will soon realize that poultry products are continually subject to a diverse and changing microflora of both pathogenic and spoilage organisms.

Since last year's "Sixty Minutes" segment on the "national poultry contamination crisis" the general public has been provided a wealth of misinformation concerning poultry sanitation. While traditional processing cannot be expected to produce a sterile bird, processors can be expected to reduce and control cross-contamination of pathogens. *The Microbiology of Poultry Meat Products* provides excellent information on good manufacturing practices that can lead to minimal cross-contamination and adequate shelf life. This publication is essential for any health official involved in food sanitation. For the poultry processing industry, it is a must!

Homer C. Emery, Ph.D.
LTC MS US Army
1865 Bullene Dr.
Fort Detrick
Frederick, MD 21701

Food Quality Control: Foods of Animal Origin, Writtenby: Harry V. Hagstad, D.V.M., M.P.H. and William T. Hubbert, D.V.M., M.P.H., PhD., Iowa State University Press, 1986.

This text is an outgrowth of *Food Quality Control: A Syllabus for Veterinary Students* also written by the same authors.

The author's state that "this book is unique in that it presents the issue of food quality control as related to foods of animal origin throughout the complete food chain," unlike other texts which focus on only one segment of food products or processing.

The text is comprised of three chapters entitled: Food Production Technology: The Food Chain, Foodborne Disease, and Consumer Protection. At the end of each chapter are very in-depth bibliographies.

The intent and purpose of the text is to prepare students to:

- Identify human health hazards in foods of animal origin.
- Identify the role of veterinarians in preventing introduction of hazards into the food chain.
- Identify agencies and their activities in regard to maintaining safety and wholesomeness of foods of animal origin.
- Identify principles of safe food handling and processing.
- Collect and analyze data relevant to investigation of foodborne disease outbreaks.

The text accomplishes the goals and much more!

In a nutshell, "*Food Quality Control* provides information necessary to guide the professional who has the dual role of preventing economic loss to the producer while ensuring a safe food-animal product to the consumer."

Though aimed at the veterinary student, this text is also a valuable resource for professionals and students in the areas of animal and food science.

Kevin Anderson
Ames Health Dept.
Ames, IA 50010

Public Health Sanitarians Review Manual (Environmental Health Practioners) W-H Interscience Inc. Publications, PO Box 1944, Dearborn, MI 48121

This review manual is designed to assist Public and Environmental Health professionals with preparation for sanitarian certificiation. The intent of the manual is to serve as a study aid and be used as a tool to increase and test familiarity with various environmental health subject matter.

Public Health Sanitarians Review Manual contains very comprehensive 1000 questions in subject matter pertaining to: General Sciences, Math, Water and Food Quality, Vector and Disease Control, Housing Environment, Institution Environment, Industrial Hygiene, and Safety.

Each chapter consists of a number of questions (ranging from 50 to 200) with answers provided at the end of the manual.

Also included is a sample Final Exam, with answers provided.

Kevin Anderson
Ames Health Dept.
Ames, IA 50010

Food Science Facts
For The Sanitarian

Dr. Robert B. Gravani
Cornell University
Ithaca, NY

TRAINING IN THE FOOD INDUSTRY

When people think about the manufacture, preparation and display of safe, wholesome and high quality foods, they often visualize well designed, clean and sanitary, efficient, well-run food operations. They sometimes tend to forget about the many men and women who work hard to make these foods available.

Food processing plants, warehouses, food service facilities and retail food stores could not operate properly or efficiently without dedicated, highly motivated, well trained, knowledgeable and hard working employees. These workers play a key role in assuring the safety and wholesomeness of the foods they manufacture, prepare, store and offer for sale. Well trained and caring individuals are the lifeblood of any food company and are the vital link between good sanitation and safe foods.

This issue of Food Science Facts deals with employee training in the food industry and highlights the critical importance of properly training newly hired workers.

While many food companies address the issue of training and talk about company training programs, few have adequately planned and organized continuing education and training programs for their hourly work force. Few really understand the needs for the adult learner and tailor their programs and activities to meet this specialized and unique audience.

Well planned and coordinated education and training programs are more than just an occasional get-together with employees to "talk about a few important items" or to show an isolated slide set or video tape. Education and training should be a strong part of a company's management philosophy and policy. This catchy slogan, "quality people make quality products," used by a major U.S. food processor, sends a very important message to all of its employees. It says they're important and the work they do to make high quality foods is appreciated. Total management commitment to the education and training function is a must for this activity to succeed.

Many food professionals often ask, "when should education and training programs begin for newly hired workers?" Education of individuals really begins during the interview process when job applicants are screened. In addition to specific job related items, general information about the company, the role that it plays in the food industry and to consumers, as well as the need for dedicated, hard working people should be stressed. Facts about sanitation policies, dress codes, product quality and safety should also be discussed with the prospective employee at this time. Even if a person is not hired or declines the job offer, if the interview is conducted properly, the individual should have a good understanding of the company. This is good public relations. Time well spent during the first interview can aid in the selection process by subtly providing job applicants with information about what is expected of them should they join the company.

Assuming that the individual is hired, the next opportunity for education and training occurs on the new employee's first day on the job. The orientation session is the perfect time to welcome the newly hired person to the company and get them off to a good start. A competent, personable and knowledgeable foreman, supervisor, or manager should conduct this session. This person should make the new employee feel relaxed and encourage questions. Occasionally, this orientation meeting is considered a "chore" and is assigned to someone who may not fully understand the importance of this session to the employee's development and the company. The first education and training opportunity creates a lasting impression in the employee's mind about company philosophy and attitude.

There are four major areas that should be shared and discussed with every new employee. These broad areas include:

- Welcome to your new job
- Answers to important questions
- General Information
- Welcome to our team

Let's look at each of these areas in more detail.

Welcome to Your New Job

At the beginning of the orientation session as the

N.M.C.

NATIONAL MASTITIS COUNCIL

These Organisms Live on Teat Skin

Staphylococcus species (staphylococci other than *Staphylococcus aureus*) often are the bacteria most commonly isolated from infected mammary glands in a herd. *Staphylococcus* species usually are regarded as minor pathogens because intramammary infections caused by these bacteria generally are associated with only a mild inflammatory response and rarely cause clinical mastitis. However, quarters infected with *Staphylococcus* species do have significantly higher somatic cell counts than do uninfected quarters.

Control of *Staphylococcus* species intramammary infection (SIMI) currently is based upon implementing an effective teat dipping and dry cow therapy program. *Staphylococcus* species are neither truly environmental nor contagious mastitis pathogens, but are normal inhabitants of bovine skin. Therefore, the primary source of these bacteria is the cow herself.

Staphylococcus species establish on bovine teat skin soon after birth and provide a constant source of bacteria to colonize the teat end throughout the life of a cow. Applying germicidal dip after milking reduce the number of these bacteria on teat skin. Dipping teats with products containing iodophors or chlorhexidine has been shown to reduce prevalence of SIMI. Neither predipping nor backflushing are effective in reducing rate of SIMI during lactation.

Prevalence of SIMI is greatest during nonlactating periods in which teat skin is not exposed to germicidal teat dips. *Staphylococcus* species account for approximately one-half of dry period infections. Dry cow therapy is effective in reducing SIMI in the first half of the dry period, but is ineffective against infections occurring in the last half of the dry period. Infections occurring during the dry period are of shorter duration than SIMI occurring during lactation.

The role of *Staphylococcus* species as normal flora of the teat skin and the significance of SIMI has not been completely defined. These skin flora opportunists may take on greater importance as the prevalence of major contagious and environmental pathogens decline in herds.

1840 Wilson Blvd.
Arlington, VA 22201
703-243-8268

supervisor welcomes the person to the job, several items should be discussed. These include:

- The purpose of meeting.
- A brief company history.
- The company's organizational structure.
- What the company offers the new employee.
- The expectations of the new employee.

Answers to Important Questions

After sharing welcoming remarks, the supervisor should discuss other important issues such as:

- work policies
- dress requirements
- payroll information
- sick time
- insurance
- vacation time
- additional benefits
- performance review
- grounds for dismissal
- grievance procedures

General Information

These facts will enable the new employee to get better acquainted with the new job environment, as well as specific company policies and procedures. They include:

- facility
- training programs
- emergency procedures
- sanitation rules
- customer/employee courtesy
- cutting losses
- personal conduct

Welcome to Our Team

The orientation session usually comes to an end when the supervisor summarizes and discusses key points made during the meeting. The supervisor should then sincerely welcome the new employee to the company's team. This team is made up of dedicated people who work to make, prepare or sell safe, wholesome, high quality foods.

A well planned and conducted orientation meeting with a newly hired employee can be more beneficial than most people realize. In addition to providing accurate and up-to-date information on a number of important items, it also helps to build a solid foundation of trust in the supervisors and the company.

The next several issues of Food Science Facts will describe other education and training opportunities in the food industry and identify the specialized needs of the adult learner.

Food and Environmental Hazards to Health

FDA Announces Policy on EDDI Used in Animal Products

In the April 3, 1986 issue of the Federal Register, FDA announced the availability of its policy on the use of ethylenediamine dihydroiodide (EDDI) in products administered to animals.

EDDI, used as a component of salt/mineral mixtures, liquids and powders which are added to animal feed or drinking water, has been given to animals for many years for both nutritional and therapeutic purposes. Used as a supplemental source of iodine, EDDI is generally recognized as safe (GRAS) for nutritional purposes, when used at levels consistent with good feeding practices as provided for in the animal drug regulations. Ten milligrams (mg) per head per day of EDDI is considered an appropriate maximum level to be recommended on labeling of EDDI-containing products intended for this routine use of iodine in the diet of beef and dairy cattle.

All EDDI-containing products bearing claims for treatment or prevention of any animal disease - other than the prevention of iodine deficiency - are considered unapproved new animal drugs or feeds containing unapproved new animal drugs, and are adulterated under the Federal Food, Drug and Cosmetic Act.

All EDDI - containing products not bearing claims for disease treatment or prevention, but providing over 10 mg per head per day of EDDI, may be considered adulterated drugs or feeds, adulterated foods, or misbranded foods under the Act. These EDDI products will be evaluated on a product-by-product basis if they are introduced or delivered for introduction into interstate commerce on or after September 1, 1986.

For further information about this policy, contact:
Dr. Andrew J. Beaulieu (HFV-210), Food and Drug Administration, Center for Veterinary Medicine, 5600 Fishers Lane, Rockville, MD 20857. Telephone: 301-443-3044.

FDA Veterinarian Sept/Oct '86.

Chloramphenicol Treated Veal Calves - Recalls

During a routine inspection in April, FDA investigators discovered that chloramphenicol was being illegally distributed to producers in Indiana who were then using it to treat veal calves. In lieu of regulatory actions, the producers voluntarily recalled the treated calves. Although unusual, the recall of the calves was possible because the courts have ruled that live animals intended for use as human food are considered to be food.

The recalls led to the quarantine of over 150 veal calves by the State of Indiana where the animals are being held pending final disposition. Because FDA has no data to show when animals receiving chloramphenicol would be safe for human consumption, the Agency has stated that these animals may never be used for human food. The producers involved have signed agreements to that effect.

FDA Veterinarian Nov/Dec '86.

Chinese Restaurant Syndrome

"Chinese Restaurant Syndrome" is a phrase used to describe symptoms such as a burning sensation, tightness or numbness in the chest, face, or neck that some people experience after eating Chinese food. For more than a decade, the syndrome has been linked to monosodium glutamate (MSG), commonly used as a flavor enhancer in Chinese cuisine.

However, a study completed by Dr. Richard A. Kenney, Professor of Physiology at George Washington University Medical School, indicates that the MGS link is not supportable and that Chinese Restaurant Syndrome may be a misnomer.

Kenney contacted 30 individuals over a period of five years for the study. Of the 30, six individuals felt sure they reacted adversely to MSG. Each individual was tested four separate times, after fasting, in a tightly controlled, double-blind fashion. On two occasions, each was given a soft drink solution containing 6000 mg of MSG. An MSG-free placebo solution was administered the remaining two times.

Two of the subjects reported tightness in the face, tingling of the hands, or warmth behind the ears to both solutions. The remaining four subjects reported no symptoms at all.

Based on study results, Kenney believes that people who have heard of Chinese Restaurant Syndrome and know what it is are ten times more likely to report the symptoms than those who are unfamiliar with it. Commenting on his ongoing research, Kenney said "Certain susceptible individuals may be sensitive to MSG, just as some individuals are sensitive to a particular food or ingredient. However, MSG sensitivity has not been documented in controlled clincial studies."

Kenney's study, "The Chinese Restaurant Syndrome: An Anecdote Revisited," was published in Food and Chemical Toxicology, Vol. 24, No. 4.

Food Processing. Oct. '86.

Thousands Exposed to Hepatitis in Oregon

by Gail Oberst and Mary Kaull
USA TODAY

Portland, OR - An outbreak of hepatitis has sent more than 3,000 people streaming to clinics and hospitals, and prompted the state to schedule food-handling courses for restaurants.

The outbreak of hepatitis A - one of two recently -

has been traced to a hostess at Rose's, a restaurant in suburban Portland. As many as 6,000 may have been exposed.

People began lining up for shots soon after being warned Thursday. At times, as many as 300 people stood outside a clinic in suburban Hillsboro, said health official Larry Eisele. He said of the 6,000 who ate at Rose's, five percent were "truly exposed".

The symptoms - which take up to six weeks to appear - include nausea, vomiting, and fatigue. Hepatitis usually is caused by poor hygiene, and Oregon officials suspect that in the case of Rose's, the disease was transmitted during food-handling.

So far, officials have found five of Rose's employees with the disease and as many as ten customers with early signs.

Most of Rose's customers remain loyal.

Alice and Bill Schwanbeck of Beaverton have eaten there every week for the last six months. "We wouldn't change that, it's such a lovely, clean place," said Alice Schwanbeck.

Rose's owner, Max Birnbach, said Sunday business was about 85 percent of normal: "Nobody is blaming us."

In an earlier outbreak, 2,500 people were exposed in state facilities. There have been three confirmed cases.

NYSMFS Newsletter Nov '86.

Outbreak of Gastrointestinal Disease - Ontario

In early April 1986, 2 Sarnia kindergarten children were admitted to the hospital with severe bloody diarrhea that progressed to hemolytic uremic syndrome (HUS). Initial bacteriologic examination of the stools were negative for established enteric pathogens but, on further testing, *Escherichia coli* 0156:H7 was identified in both cases A third case of HUS, also a kindergarten student at the same school, occurred shortly after the first 2 cases were diagnosed. An epidemiologic investigation was begun immediately following the admission to the hospital of the first 2 children. It was found that all 3 children had recently been on a field trip to a dairy farm with their kindergarten classes. Enquiry by the school nurse about gastrointestinal illness indicated that several kindergarten children had experienced symptoms in the week following the field trip.

A case-finding questionnaire was prepared which defined a case as an individual with one or more episodes of abdominal cramps and/or diarrhea (loose stools or increased frequency of bowel movements) with onset of illness after 1 April. Between 8 and 22 April, 42 of the 63 children enrolled in kindergarten experienced symptoms fitting this case definition, given an attack rate (AR) in this group of 67%. Three kindergarten children who did not go on the farm trip all remained well. The investigation revealed that 3 different kindergarten classes had been on a field trip to the farm on 2 consecutive days, 7 and 8 April. A junior kindergarten class visited the farm the morning of 7 April, followed by a senior kindergarten class in the afternoon. A second senior kindergarten class made the trip on the following morning. On each day, the children were driven to the farm by teachers, teaching assistants and volunteer parents. At the farm, the children engaged in various activities such as feeding and petting animals, gathering eggs, milking cows, and playing in the yard. The same food snack was served at the farm both days: hard boiled eggs, egg cookies, and unpasteurized milk, some of which was mixed with powdered chocolate. These particular classes had not been on any other recent excursions. A detailed questionnaire requesting food and beverage consumption, play activities and animal contact during the farm trip, and verification of date of onset of illness was prepared. Information was requested from the 60 kindergarten children, 12 adults, and 2 other children not in kindergarten classes who had been to the farm. All farm trip visitors were requested to submit stool samples. A number of household contacts of cases and the dairy farm family also submitted stool samples.

Completed questionnaires were obtained for 60 children and 11 adults. Analysis of the risk factors for the children showed that there was no significant association between illness and the following activities: playing on the ramp to the barn, feeding or petting the animals, gathering eggs, milking cows, drinking water, and eating food. Although there was also no significant association shown between drinking unpasteurized milk and illness, all but one of the 60 children drank the milk. The attack rate in adults who drank milk was 60% and only 17% in those who did not drink it. The one child who did not drink milk did develop an illness fitting the case definition. However, neither *E. coli* 0157:H7 nor free fecal verotoxin (FVT) was identified in his stool sample. The epidemic curve for 41 of the 42 kindergarten cases shows date of onset of illness. The median onset date was 13 April and the shape of the curve supported a common source outbreak. Four of the 12 adults on the trip had symptoms fitting the case definition (AR = 33%) and one of the 2 children not in kindergarten was also a case.

Results of laboratory testing identified *E. coli* 0157:H7 as the only enteric pathogen significantly associated with the outbreak. Rotavirus was detected in 2 samples submitted as part of the investigation. Both were negative for *E. coli* 0157:H7 and neither individual had visited the farm.

All 62 children who went to the farm submitted stool samples. Forty of these samples were examined for the presence of FVT. Thus 67% of the cases that occurred among children who went on the farm trip were laboratory-confirmed.

Nineteen of the 62 children were asymptomatic. However, 10 (53%) showed laboratory evidence of infection. There was one positive stool culture and a further 9 samples contained FVT.

Eleven of the 12 adults submitted stool samples. Evi-

dence of infection was detected in 4 of the asymptomatic individuals. None of the 4 adults who complained of symptoms listed in the case definition was confirmed as having infection with *E. coli* 0157:H7. Eight of the household contacts who submitted stool samples had positive cultures. Three of these were symptomatic. None of the dairy family had positive stool cultures. No tests for FVT were done on their stool samples.

Twelve of those who were culture-positive continued to excrete *E. coli* 0157:H7 in serial stool samples for up to 5 weeks.

Environmental testing of water, milk and milk-line filter samples failed to yield evidence of *E. coli* 0157:H7. However, the organism was isolated from the stools of 2 calves.

All *E. coli* 0157:H7 isolates were positive for VT and negative for heat-labile and heat-stable enterotoxins. Both human and bovine strains belonged to phagg type 8, and exhibited similar plasmid profiles (preliminary findings).

Discussion: E. coli 0157:H7 has only recently been identified as a cause of outbreakw of gastrointestinal disease. It was first reported in 1982 as the organism responsible for 2 separate outbreaks in the United States among people who had eaten at the same fast food chain. Since that report, outbreaks in 3 nursing homes and a day-care centre have been described in the literature. In addition 4b those involving institutions, an outbreak of hemorrhagic colitis associated with *E. coli* 0157:H7 occurred in 1983 in Labrador. The outbreak of gastrointestinal disease and HU reported here is the first to have been described in kindergarten children in Canada.

From the epidemic curve, the incubation period of this outbreak ranged from 1 day to 14 days with a mean incubation period of 6.8 days. This is considerably longer than the estimated 4 days in the community outbreaks in 1982, but shorter than the incubation period of 8 days found in a nursing home outbreak in 1984. In a 1985 nursing home outbreak, the median incubation period was 4 days, ranging from 3 to 9 days.

The spectrum of illness ranged from asymptomatic infection to severe bloody diarrhea and HUS. Assessmenzthe extent of infection in the farm trip cohort was made possible by the large degree of compliance with stool sample requests and the availability of testing for both *E. coli* 0157:H7 and FVT (although FVT testing was not carried out on all samples).

Forty-three (58%) of the 74 people on the trip had laboratory evidence of infection with *E. coli* 0157:H7 Twenty-three of the stool samples were culture-negative but contained FVT. The large number of infections identified only by the presence of FVT reinforces the previously demonstrated usefulness of the test in the diagnosis of verotoxin-producing *E. coli* infection. The long excretion period of *E. coli* 0157:H7 in those with positive stool cultures is noteworthy in this outbreak. In a previous report, the organism was recovered from stools collected within 4 days from onset of illness, but not after that date in adult patients, although bacterial shedding continued for a longer period in children. Carriage of *E. coli* 0157:H7 has been confirmed over 13 days in one child and possibly up to 28 days in another.

There was no evidence of person-to-person spread in the kindergarten classes or the school. However, the finding of 8 positive stool samples from family contacts supports the role of household transmission in the spread of this infection.

Although, in the study, analysis of the data failed to show statistical significance between illness and risk factors studied, the epidemiological evidence strongly suggested unpasteurized milk as the most likely vehicle of infection. This was further supported by the fact that neither *E. coli* 0157:H7 nor FVT was found in the one child who did not drink milk. Therefore, the assumption was that the *E. coli* 0157:H7 found in cattle on the farm may have been the source of contamination of the milk. This unpasteurized milk was then served to the farm visitors resulting in the outbreak of gastrointestinal illness and the complication of HUS in 3 cases.

CONFERENCE SEES HACCP AS NUMBER ONE PRIORITY

"The implementation of the HACCP (Hazard Analysis Critical Control Point) approach must be a top priority in the food industry and among food regulators," begins the first of a number of HACCP-related recommendations to come out of the 1986 Conference for Food Protection held in Ann Arbor, Michigan, August 17-20, 1986. "Industry and regulatory representatives must work together in the implementation of the program," the recommendation continues. "The Conference should endorse and promote the use of the HACCP concept in food protection program."

The Conference, however, rejected the proposal that "at some point in time HACCP should be mandated by law." Although the recommendation appeared to have the support of the regulatory segment of the Conference, it was strenuously opposed by industry spokesmen who maintained that it was premature to talk of mandating a system of sanitation control that is still in the relatively early stages of development. The Conference also refused to approve a proposal that "HACCP procedures were employed in assuring product safety."

The Conference attracted 215 participants representing industry, government, academic, and consumer members of the newly established Conference for Food Protection. Their deliberations produced 86 recommendations which were presented to the Conference for approval. The Conference approved 71, rejecting 15.

Conf. Quarterly Report Fall '86
Conference for Food Protection

74th IAMFES ANNUAL MEETING REPORT

"Largest Attendance Ever"

Anaheim, California was the site for over 850 participants at the 74th IAMFES Annual Meeting, held August 2-6 at the Disneyland Hotel...the largest attendance to date!

Two full days of sessions including topics and speakers on food, milk and environmental issues, combined with a day of committee meetings and the annual business meeting which made for a very productive, educational conference.

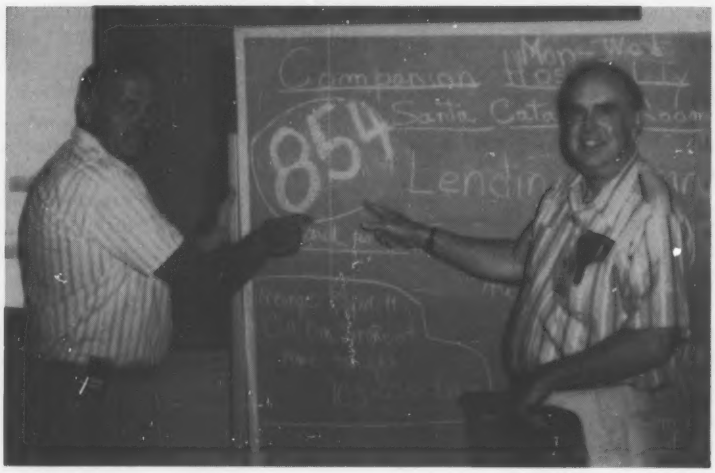
Exhibits were, for the second year, an added educational asset to the meeting, with over 45 companies participating with table top displays.

Facilities and hospitality of the Disneyland Hotel, along with the Southern California climate made for a most comfortable setting.

Family entertainment included a Mexican Fiesta on the grounds of the Disneyland Hotel, complete with a Maharachi Band, dancers and pinata for the children.

The program committee chaired by Leon Townsend produced a remarkable program that everyone was sure to benefit from. Local Arrangements in California, chaired by Austin Olinger are to be commended for such a fine job on all the many, many details of orchestrating such a large meeting. A special thank you to all local arrangements including:

Local Arrangements: Austin Olinger and Joe Miranda
Registration: Howard Eastham, Dick Harrell, Bill Chappelow, John Bruhn and Helen Rubin
Finance: Jack Michelson and Don Gottschalk
Early Bird Reception: Paul Virgin
Milk Breaks: Paul Virgin
Special Events: Austin Olinger, Donna Marincovich, Marcia McGlochlin and Keith Gomes
Visual Aids: Don Gottschalk
Exhibitor Liaison: Wayne Baragry
Door Prize: Ralph Smith and Willie Howder



Breaking attendance records!

Bill Coleman, Affiliate Council Chairperson; Kate Wachtel, IAMFES Staff; Janie Park, Texas Affiliate Delegate (standing downhill to show how tall they grow them in Texas!)

Austin Olinger, Local Arrangement Chairperson and Kathy R. Hathaway, Executive Manager, IAMFES.

David Mayfield, TN; Sid Barnard, IAMFES Past President, PA; and John Bruhn, CA.

Festive fun at the Mexican Fiesta.

Good food — fun times — great weather during the Monday night Mexican Fiesta.

Sonya Gambrel and Ron Schmidt promoting the 75th IAMFES Annual Meeting in Tampa, Florida in August of '88.

Please take the opportunity to read through the following pages and learn more about the important IAMFES committees, of which you can be a part of, as well as details on the meeting.

All award winners are also highlighted in this section. Many deserving people were recognized during the Annual Awards Banquet Wednesday evening. Be sure YOU nominate a deserving colleague for the prestigious IAMFES awards next year. Information on HOW TO NOMINATE is available at the IAMFES office in Ames, 800-525-5223, in Iowa and outside the US call 515-232-6699, 9-4 CST.

Be sure to make plans NOW to attend the 75th IAMFES Annual Meeting, the first week of August at the Hyatt Regency Westshore in Tampa, FL. This is a beautiful facility, and only minutes from the airport. Information, complete with registration forms will be available beginning with the January issue of both DAIRY AND FOOD SANITATION and the JOURNAL OF FOOD PROTECTION.

For those of you who are interested in submitting a paper for presentation at the 1988 meeting, check the October issue for abstract forms, or call the Ames office.

Hope to see all of you in Tampa next year. We are going for over 1000 in attendance, so BE A PART OF IT. If you have never attended an IAMFES meeting, make plans now to attend the 75th in Tampa.

The following pages will give you a detailed report of the 74th IAMFES Annual Meeting.

more . . .

PRESIDENTIAL ADDRESS

as presented during
the 74th Annual Meeting of the
International Association of Milk, Food &
Environmental Sanitarians, Inc.
Anaheim, CA

Roy Ginn
IAMFES President 1986-87
Dairy Quality Control Institute
2353 North Rice Street, Room 110
St. Paul, MN 55113

Left to right, Leon Townsend, 1987-88 IAMFES President and Roy Ginn, 1986-87 IAMFES President.

What does IAMFES mean to you? To me it means a learning experience. Over the years I have learned about listeria, biosensors, salmonella, sanitation, water quality, milk and food quality, etc., but, most of all, I have learned about people and their professions. IAMFES is made up of scientists, educators, managers, business owners, sanitarians, technicians, farmers, writers and salesmen, etc. The name of our organization is a mouthful, but it does accurately suggest most of the disciplines in which you are employed. The association is exciting, interesting and fun, and after you have been here as long as I have, it is like a family. I have enjoyed this association, serving on the Board, and now as your President.

Speaking of people, I would like to single out a long time member, who has served this association faithfully for many years. He has been Editor of the Journal of Food Protection for twenty years. Dr. Elmer Marth, University of Wisconsin, is retiring as Editor of the Journal of Food Protection this year. Dr. Marth has given so much of himself to make the Journal successful, and I would say we have one of the finest journals in this country. It is people like Dr. Marth that make this association so great and successful. Thank you Elmer, for all of those devoted years.

I would like to welcome Bob Sanders to the Board of Directors of IAMFES. Bob will become the Secretary of the Board on Thursday morning. Bob is with FDA in Washington, D.C, and has been a long time member of IAMFES.

The Board has made a real effort this year to strengthen our Committees. We want active and busy committees so that each of you will have a place to contribute to our common goal of food and environmental protection. We have had some committees which are in name only. If we are going to tolerate that because of indifference, or maybe, it looks good on the program, then we are not providing education and information; therefore, not serving our members.

All committees must have a purpose and a goal and a plan to accomplish that goal. We have many such committees in our association that have accomplished their goals and are looking at new goals. To help strengthen our committees and get new ideas, the Board met with committee chairpersons this morning for a breakfast meeting. Note in your program that we have provided time for committee chairpersons to give their reports during the various sessions. Our hope is to provide information to the people who are interested in that discipline. I have been at many of our business meetings where we raced through committee reports so we could make the bus for our evening social time. This is one of the reasons we have tried to change the format. Many committees have given their time and effort to give you information to help you in your profession. It is only decent and in order, that we provide them the forum to present this information. I would also encourage committees to have a publishable report so it could be published in one of our Journals, therefore being useful to a larger audience.

You will note in your program that we have added several new committees. Our Vice President, Dr. Gravani, has worked very hard this past year to encourage and nuture chairpersons to look at their goals and objectives.

At our business meeting today, we will be voting on proposed ammendments to the Constitution and By-laws. Our Sustaining membership is growing and we are proposing a new section in the By-laws on sustaining members, as there is also a proposed section on retired members. These are important changes, and I encourage you to attend the business meeting and voice your opinion.

Last year, the Board approved table top exhibits at our annual meeting. The purpose was to provide another format to present information. The exhibits should be educational in nature. We had 27 exhibitors and the effort was successful, so this year, the Board voted to expand the number of exhibits. We have limited them to table top exhibits, as we are not trying to compete with equipment type trade shows. I would encourage this policy be guarded in the future.

So that the goals and directions of this association stay on course, the Board authorized a Long Range Planning Committee. This committee will be chaired by Dr. Mike Wehr, from Oregon. We want this committee to look at our Journals, committee structure, and our annual meetings and make recommendations to the Board as to the direction this association should take to better serve our membership and expand our membership. This is the first time this association has had a formal Long Range Planning Committee.

This association is alive, well and growing. The membership has increased 523 and at least 300 of these can be credited to the efforts of the Membership Department and telephone marketing at Ames. As of July 1, 1987, we have 4,121 members. We have 78 sustaining members and 32 of these were added this year by the Staff. Look at the list of Sustaining members in the front of the Journal. This is a fantastic effort by our staff. Congratulations! We are proud of your good work.

We mailed 631 more Dairy and Food Sanitation Journals this year over last for a total of 3095 journals. This year is the 50th anniversary of the Journal of Food Protection. We send out 435 more copies for a total of 3142. What a nice anniversary present. We are growing!

Kathy Hathaway, our Executive Manager, and her staff have been distributing our Journals at trade shows to let them know IAMFES has something educational to offer professionals in food protection. We all should be proud that this is the 50th anniversary of the Journal of Food Protection.

The advertising department has surpassed their goal of $100,000 net advertising sales by $6,000.00

We have had to expand our office space, add staff and have installed a new phone system. There are always growing pains, but, if we are to serve the membership, we need adequate facilities.

The Board has authorized an audio visual lending library, and this will require space and personnel to manage. This is being supported by our Foundation Fund. The Library Management Committee, chaired by Past President, Sidney Barnard, has been reviewing slides this year, to get this lending audio visual library functioning. This is another way to educate people, but it requires money, space and time. We need people to serve, so, if you are interested, let us know.

A pleasant task for me this past year, was to sit on the jury of the Crumbine Award. This is a prestigious award, given to an outstanding health department. The presentation of the award is rotated between IAMFES, APHA and NEHA meetings. The presidents of these associations sit on the jury with others. The Single Service Association, represented by Charles Felix, sponsors this Award. I encourage more health departments to enter this competition. Our Board has been looking at updated guidelines for IAMFES awards. There are many deserving people in our association so please take some of your time and nominate them and send in their biographies to the Awards Chairman. Who knows--the individual could be you!

This is the second year for our graduate student papers with the best papers receiving a monetary award. We want these young scientists in our association as they are our future.

In the past few years, we have been struggling to come up with the correct meeting sites for our annual meeting. It is very difficult for the Board to turn down an Affiliate who would like to host an annual meeting, but there are several considerations which must come into play, such as a hotel with adequate number of sleeping rooms, meeting rooms, space for exhibitors, and adequate air transportation. This will be one item for the Long Range Planning Committee to discuss. As our association grows, we will find there are fewer sites which can house our annual meeting. This is a new challenge which all affiliates and the Board will have to deal with in the future. From the other side of the coin, growth is a pleasant problem. I am pleased to announce that we have a new affiliate in our Association. It is the Georgia Association of Food and Environmental Sanitarians, Inc. Welcome aboard!

Leon Townsend, Program Chairman, and his Committee have come up with an outstanding program this year. In the next two days, you have the opportunity to choose from twelve different sessions. Three Food Protection Sessions; Three Milk Sanitation Sessions; Symposium on Food Tampering and Protective Packaging, on Biosensors and Their Potential Use in Food Microbiology, and on Water Quality; A Food Service Sanitation Session; an Environmental Protection Session; and a Session on Listeria and Emerging Pathogens. Hopefully, you will find something which will be of interest to each of you in these sessions. Be sure to take some time to visit the exhibits.

The California Affiliate has done an outstanding job in making your stay a pleasant one. I take a risk in singling out one person, however, Austin Olinger has put in many hours of effort to make this a successful meeting. Thank you, Austin, and your Committee. While you are here in California, take advantage of the various tours which have been provided. Thursday be sure to take in the California large dairy herds tour. This is a beautiful part of the country. I hope you and your families have a pleasant meeting.

COMMITTEE REPORTS

If you wish to serve on a committee, please contact this office so that we may put you in contact with the committee chairperson. 800-525-5223 or 515-232-6699.

Long-Range Planning Committee

The IAMFES Long-Range Planning Committee is a new committee authorized by the Board of Directors to review the goals, objectives, and operation of the Association.

Membership of the committee, as approved by the Board of Directors, is as follows: M. Wehr (Chairperson), S. Hibberd, J. Kozak, E. Marth, G. Muck, L. Roth, N. Wagner, and D. Welde.

IAMFES Executive Director, K. Hathaway, serves as an ex-officio member.

The committee held its initial meeting on August 3, 1987, at the Association's annual meeting.

Based on presentations made to the committee by Board members R. Ginn, B. Gravani, and R. Case, and as supplied with written information to the committee by the Board of Directors, the Long-Range Planning Committee will develop recommendations to the Board in the following areas:

I. Overall philosophy of IAMFES

1. Are overall goals, objectives, and purposes of the organization as specified in the constitution/bylaws adequate?
2. Membership philosophy/strategy. What is the optimum size of the organization; who are our target groups/individuals?
3. Overall financial philosophy/strategy. Are current sources of income adequate? If changes are needed, what options should be considered?

II. Operations

1. Membership
2. Financial
3. Publications
4. Annual Meeting
5. Committee Structure and Executive Board

III. Other Areas

1. Relationship with other organizations
2. Constitution and bylaws: update as needed
3. Name of organization

It is the intent of the Long-Range Planning Committee to provide recommendation statements in each of these areas, but not provide detailed implementation plans.

A one-year time frame for review of these areas and development of initial recommendations will be followed. Background reports in the organization, membership, financial, and operational areas will be requested from the executive director.

A mid-year meeting to review the above areas will be scheduled based on the ability of the Association to financially support such a meeting and the Board of Director's approval of this proposal.

The Committee looks forward to a challenging and rewarding year.

Respectively Submitted,
Michael Wehr
Chairperson

Affiliate Council Meeting

Chairperson, Bill Coleman, Minnesota, called the meeting to order at 10:30 a.m., August 3, 1987. Roll was called. Twenty affiliate delegates were present. Also present were members of the Executive Board, Ames office personnel, and quests.

Minutes from the 1986 Affiliate Council meeting were read and approved as read.

Executive Board members present and introduced by Bill Coleman were:

Bob Sanders: Secretary

Leon Townsend: Incoming President -- Leon explained that Bill Coleman had represented the Affiliate Council at two Board meetings the past year. Leon expressed concern about affiliate membership. Overall membership continues to increase, but affiliate membership continues to decrease. Affiliate Council members were encouraged to discuss this problem. The International Office has an active membership program, however they need more names and telephone numbers of affiliate members who are not members of the International.

Roy Ginn: President -- Roy also emphasized the need to work on increasing affiliate membership. *Dairy and Food Sanitation Journal* is in good shape, but more articles are needed, expecially in areas other than milk sanitation.

Kathy Hathaway: Executive Secretary -- Kathy encouraged Affiliates to send a summary of their meetings. These summaries will be published in Dairy and Food Sanitation and can often provide ideas to other Affiliates.

Total Membership is 4096 of which 2743 are members and 1353 are subscribers. There are 944 affiliate members who are also IAMFES members, 1532 direct members and 78 student members. Roy Ginn expressed the need to attract more student members. Competition for students is difficult because of IFT student award program and most faculty are associated with IFT.

Affiliate Reports

Kentucky (Dale Marcum): Affiliate currently has 364 members of which 32 are IAMFES members. Membership dues are $8.00 and conference registration fee is $25.00 which includes a buffet meal. Affiliate pays presidents dues to both IAMFES and NEHA. A $500 scholarship fund has been established. A bid to host the 1990 meeting has been put in. Vice-president is responsible for awards.

Illinois (Joe Burns): Semi-annual meetings are usually joint meetings with Fieldman's groups, etc. Usually try to have a major theme or topic with several speakers. A centered theme or topic has lead to better meetings and attendance.

Tennessee (Ruth Fuqua): Trying to maintain membership.

Alberta (Jim Steele): Membership has decreased from 100 to 75. Trying

to obtain new members.

Wisconsin (Randy Daggs): Annual meeting September 23 and 24. Usually about 160 people attend annual meeting.

Georgia (Dave Fry): This is a new Affiliate and they have started with 81 members. Encourage members to join the International. Four members of their Affiliate are speakers at this year's IAMFES meeting. Annual meeting plus symposia are interesting topics. For example, on September 18 a symposia on Salmonella and Poultry will be held. Seek assistance from industry, educational institutions, and regulatory agencies to sponsor symposia. Those who are affiliate members can attend symposia at a reduced fee. This encourages people to join the Affiliate.

Indiana (Helen Uhlman): To encourage new members a program was established that will reduce current member's dues by one-half if they bring in a new members. Also the new member's dues are reduced by one-half. If a current member brings in two new members, their membership will be payed for the following year. Program has been effective. Annual meeting will be September 22-24.

Florida (Ron Schmidt): 1988 IAMFES meeting will be in Tampa. Currently have about 150 members.

Kansas (Don Bechtel): Annual meeting during first week of October. Also working on membership. Will host the 1989 IAMFES meeting.

Texas (Janie Park): Affiliate membership has been growing. At the June annual meeting there were 310 participants. Offering a basic pasteurization school. Six have been offered throughout the state. School consists of a 2 1/2 day program. Equipment and instrumentation company representatives assist in the school.

Missouri (Grace Steinke): Membership is down. Some people will attend Affiliate meetings, but do not join the Affiliate. One hundred and sixty-five attended the annual meeting but have only 108 members. Members of the audience suggested charging a registration fee and make the cost substantially more for non-members. Some require at least a 30 day membership period before the conference. Missouri also included the banquet fee as part of the registration fee. Grace expressed concern about the tightening of budgets and availability of time for officers and affiliate members to participate in affiliate activities. Employers are not willing to give employees release time to attend conferences.

Oregon (Floyd Bodyfelt): Oregon has 25-26 affiliate members and nearly all of these are members of IAMFES. Most of the affiliate activities are due to a few key people in industry and the Department of Agriculture. IFT and Oregon Dairy Industries are active associations and people cannot belong to all three groups.

Iowa (Bill LaGrange): Have approximately 180 members. Good programming helps to attract and hold members. A 1 1/2 day annual meeting with a banquet is held once a year.

New York (Dave (Bandler): Have about 600 affiliate members. The executive board actively seeks new industry members and sustaining members. Also have 110 honorary life members. Have 14 affiliates that operate around the New York State association. Workshops involving both laboratory and plants are offered with cooperative help from Cornell University. Must be a member to attend meetings and membership dues are $20.00 per year. Registration at conferences is more if you are not a member. Put out five issues of a newsletter each year.

Pennsylvania (Sid Barnard): Incoming affiliate present has the opportunity to attend the International meeting. Affiliate activities are tied closely to Penn State University. Affiliate offers two $500 scholarships.

Retired Affiliate Members: Dave Bandler was asked about New York's program for retired members. These members do not have to pay membership fees, but they can attend meetings and vote. They must pay for their own social costs at meetings.

Similar programs exist in other affiliates. Some affiliates require exec-

Dr. Robert Marshall, MO, Journal of Food Protection Management Chairperson.

Left to right, Kathy Hathaway, IAMFES Executive Manager with Dr. David Mossel, Netherlands, discussing the formation of a European Affiliate.

Harold Bengsch, MO, Dairy and Food Sanitation Management Chairperson.

utive board action before retired members can receive these privileges.

Membership: Ruth Fuqua, Chairperson - Committee is willing to hear suggestions on how to increase membership.

Awards Program: Executive Board changed the awards program and put board members in charge of the various awards. Bill Coleman was put in charge of the Shogren Award. About 14 or 15 applications were received. New improved instructions will be provided this fall. Award is now $100.00. New forms will emphasize affiliate activities.

Continuing Education Units: Available for this meeting. Each state must give approval and number of CEU granted.

New Business: Georgia is now an Affiliate and Alabama is working on becoming an Affiliate.

David Mossel (Netherlands): NW Europe is interested in establishing an European Affiliate. Membership would likely be made up of researchers and employees from industries that provide food to the Armed Forces. Such an affiliate would function as a state affiliate and would be no different than a Canadian Affiliate. Mailing costs would be more, but the additional costs would be readily accepted. The Affiliate Council as a group encouraged Dr. Mossel to proceed with his plans.

Changes in Constitution and By-Laws: All affiliate representatives were encouraged to attend the business meeting and vote on proposed changes that will affect the affiliates.

Audio-Visual Library: Executive Board approved establishment of an A-V Lending Library in November 1986. Currently there are two films and seven slide sets available. If members know of possible films and slide sets available, send the information to either Sid Barnard or Kathy Hathaway. The Committee is only interested in materials developed since 1982. Topics can be related to food service, dairy and food processing, etc. There is $3000 available to purchase acceptable materials.

Ames Office: Bill Coleman encouraged the affiliates to contact the IAMFES office for services that are either free or can be purchased. Mailing lists, labels, etc. can be prepared.

Election of Officers: Bill Coleman agreed to serve as Chairperson and Lloyd Luedecke agreed to serve as Secretary of the Affiliate Council for the coming year. Both were nominated and elected.

Meeting adjourned at 12:00 noon.

Respectively submitted,
Lloyd Luedecke
Secretary

International Dairy Federation Committee

At the meeting of the Farm Methods Committee during the 1986 Annual Meeting of IAMFES we pointed out that the United States National Committee of the International Dairy Federation was in need of additional expertise from the Farm Methods Committee membership, to serve on a variety of IDF Groups of Experts pertaining to Farm Methods. As a result, a letter was sent to the Chairperson of each of the sub-committees with the request that names be submitted.

We have had some response and have added additional members to the following groups:Bacteriological quality of raw milk
Spores in raw milk
We need representation in the following:
Residues and Contaminants in milk and milk products
Efficiency of machine milking
Spores in raw milk
Computer application to the management of dairy farms
Flowmeters and sampling equipment of milk collection tankers
Significance of lypolysis in the manufacture and storage of dairy products

Since our last report the following has been published by the International Dairy Federation and is available for purchase from USNAC.
Efficiency of machine milking
Monograph on pasteurized milk
Ewe's and goat's milk and milk products
The World market for cheese
Continuous butter manufacture
Milk collection in developing countries
Reference materials and interlaboratory collaborative studies
Monograph on rapid indirect methods for measurement of the major components of milk
Bovine Mastitis - definition and guidelines for diagnosis.

USNAC has prepared a report covering the Annual Sessions in The Hague, Holland 1986, and copies are available without charge from USNAC.

The IAMFES is a vital part of USNAC and contributors to the IDF programs. There are 35 IAMFES members who are active participants as members of 40 USNAC Groups of Experts. Excellent responses have been received from many of these people in the answering of Questionnaires and reviewing of preliminary papers and draft monographs.

USNAC and IDF are jointing sponsoring a "Contemporary Quality Assurance Seminar" that will be held in conjunction with the DFISA Expo in Chicago September 28-29, 1987. Program and registration forms are available at the IAMFES exhibit table or from the Secretary.

For those interested in obtaining any of the literature or reports mentioned above, please contact Harold Wainess, Secretary U.S. National Committee of IDF, 464 Central Ave, Northfield, IL 60093 or telephone: 312-446-2402.

Respectively submitted,
Harold Wainess
Chairperson

BISSC Committee

BISSC was founded in 1949 by six national organizations serving the baking industry to formulate construction standards for baking equipment in an effort to eliminate major sanitation problems attributed to improper design.

In addition to industry support, BISSC sought advisory assistance from public health agencies and as-

sociations.

IAMFES and other health related associations and national Public Health Regulatory Agencies jointed BISSC with the ultimate goal that all BISSC standards would be formulated to insure that all food contact surfaces or bakery equipment would be readily accesible for easy and thorough cleaning by regular employees using ordinary cleaning methods.

BISSC is governed by a Board of Directors, selected from the six supporting organizations and supplemented by the professional sanitarians from the five consulting organizations.

IAMFES has participated in all meetings of BISSC since its inception including the 72nd meeting in 1987.

The BISSC Office of Certification was established in 1966 which permitted the Registration of Equipment Manufacturers with BISSC and formulated the equipment Authorization system wherein equipment meeting the requirements of a particular standard could be authorized to display the BISSC symbol.

The BISSC Office of Certification is composed of the Director, one member representing the baking industry, one member at large, one member selected by the Bakery Equipment Manufacturers Association and one member representing a nationally recognized professional sanitarian organization.

The Chairperson of the IAMFES BISSC Committee alternates with the Chairperson of the other two sanitarian organizations in serving on the Office of Certification.

The BISSC Winter Meeting was held February 27, 1987 at the Chicago Marriott Hotel.

An informative and indepth discussion was primarily directed to formulating plans to promote the activities of the BISSC Committee manufacturers and distributors.

The standing committee on Future Projects and Public Relations was delegated to form guidelines to accomplish this and requested to report back to the General BISSC Committee at the next BISSC Meeting.

There was one request to the Committee to consider, the formulation of a new standard, or to modify an existing standard, to include a Dough Extruder-Divider used in the production of bread. A Task Committee will be appointed by the BISSC Chairperson to consider this request and make recommendations to the General BISSC Committee at the next meeting.

If you or any of your co-workers have any comments regarding dough extruders, or if there are any areas of concern or any types of bakery equipment that does not comply with any of the existing standards, and you feel a new standard should be considered, I would appreciate your letting me know so that I might submit it to the BISSC Chairperson for consideration by a Task Committee.

At present, there are BISSC Standards covering forty-two (42) categories of baking equipment with seventy-seven (77) registrations and one hundred seventy-two (172) authorizations for equipment manufactured in compliance with the standards.

A BISSC slide presentation is now available, without charge, to members of IAMFES upon request. Requests for use of the slide presentation as well as copies of all BISSC Standards and information booklets should be addressed to the BISSC Administrator.

Ms. Connie Sweetman, Administrator
Baking Industry Sanitation Standards Committee
111-E Wacker Drive
Chicago, IL 60610

We urge all Sanitarians and members of IAMFES to acquire a set of these Standards and adopt them as guidelines to subscribe to the principles of the BISSC Standards and Criteria.

The IAMFES BISSC Committee extends a standing invitation to all sanitarians and members of IAMFES to make every effort to attend the next BISSC Meeting.

The 1988 BISSC Meeting is scheduled to be held in Chicago in February or March. The exact date will be published in all the major Trade Journals later this year.

Respectively submitted,
Martyn A Ronge
Chairperson

Jerry Heaps
John G. Norris
Perry Fisher

Education and Training Committee

After considerable discussion as to the purpose and function of this committee, the following three points of agreement were reached:1) The Education and Training Committee should serve as a vehicle for coordinating or overseeing the development of whatever training programs or materials are deemed advisable by the Association or any of its committees.

2) Several of the members suggested that we explore the development of a video cassette on emerging pathogens to update the training of field sanitarians.

3) The committee may serve as a cosponsor with other organizations in the conduct of regional seminars or workshops. This would serve as a means of exposure for the Association and could provide some income.

Respectively submitted,
W. Joel Simpson
Chairperson

Scientific Paper Committee

The Scientific Paper Committee met during the 74th IAMFES Annual Meeting in Anaheim.

Many recommendations regarding program flow, topics, speakers, and symposiums were submitted for board action. The IAMFES Executive Board will review and act on these recommendations during the fall board meeting. The outcome of these recommendations will be published the first part of the year in *Dairy and Food Sanitation*.

John Bruhn

Committee on Food Equipment Sanitary Standards

The committee met on August 2, 1987 and reviewed this year's objectives and activities. Our objectives will continue to include cooperation with other agencies in the review and development of uniform food equipment standards and interpretation, and to keep the IAMFES membership informed of new and changing standards.

During the past year, the IAMFES committee was represented at the National Sanitation Foundation's Joint Committee on Food Equipment, the National Automatic Merchandising Association's Health Industry Council, and provided input into FDA's draft interpretations and development of the proposed FDA Unicode.

The Automatic Merchandising Health Industry Council met in October 1986. Items that were discussed and given consideration included: (a) Automatic merchandising machines should have a label to inform health officials how to test the automatic cut-off control switch; (b) Section 900 of the NAMA Standard 2 should be reviewed to maintain compliance with EPA Drinking Water Standards; (c) The transporation of potentially hazardous foods should receive priority attention in vending machine operator training programs; and (d) Questions regarding the proposed Unicode's affect on the NAMA Standards. The Health Industry Council was advised that NAMA is developing guidance for operator response to suspected foodborne illness and will receive a second draft for comment. NAMA's Commissary Food Audit Committee is developing a training program for commissary operations on how to utilize the Hazard Analysis Critical Control Point inspection technique. This should be initiated in 1987.

The NSF Joint Committee on Food Equipment met in April 1987 and reviewed proposed revisions to several equipment standards. Proposed revisions to Standard 2, Food Equipment, included requirements for sink classification and size. The Committee did not support this requirement and suggested the current generic requirements should be retained. Also, equipment drawer design, specifically slides, need only be easily cleanable, but not readily removeable. Standards 18, Manual Food and Beverage Dispensing Equipment, louver design, was discussed. Equipment manufacturers have expressed a need for specific louver design requirements but consensus supported the current requirements. Also along with Standard 18 review, equipment backflow prevention was reviewed. There were concerns of copper poisoning through carbon dioxide backup. If there are documented outbreaks due to the failure of backflow prevention devices, please submit the information to NSF. Standard 4, Commercial Cooking and Hot Food Storage Equipment, was reviewed with regards to interior fasteners in popcorn machines. The consensus supported low profile fasteners. Standard 15, Plastic Materials and Components used in Food Equipment, is currently under review and comments may be submitted to NSF.

NSF demonstrated electronic access to NSF's equipment listings data base. This system provides users with instant access to current listings information. Robert Bower at NSF can be contacted for additional information.

The first FDA Unicode Task Force meeting was held December 9, 1986. The Unicode, when fully developed, will bring together into one basic document the current FDA model codes which include food service, food vending, and retail food stores. When the model code is available in draft form, I would like to invite everyone with an interest to give it a critical review.

One draft interpretation was received from FDA during the year. The proposed interpretation was in response to a question: "May dry foods be reconstituted or liquids be fortified with dry products without subsequent cooking?" There was strong arguments that this interpretation is not necessary since it would be more restrictive than current practices for handling potentially hazardous foods. A final FDA interpretation on this subject has not been issued.

Respectively submitted,
Duain B. Shaw
Chairperson

Committee on Communicable Diseases Affecting Man

During the early part of the year, the fourth edition of "Procedures to Investigate Foodborne Illness" was completed. It is substantially updated from the previous edition. Considerable expansion is given in conducting hazard analysis in food establishments, statistical calculations, and sampling. The table of foodborne diseases has been revised to include emerging diseases. Forms have been improved and more information is provided to guide investigations. Keys to situations that are likely to contribute to foodborne illness are provided. This will guide investigators to seek information about operations that likely failed and not waste time in making routine inspections of matters relating mostly to aesthetics. There is so much useful and new information in the manual that it must be seen to be appreciated. Others are finding this out. For example, requests have been received for permission to translate the manual to French and Italian for use in Canada and Italy. It's the bargain of the decade for only $3.50. Everyone working in a food safety program or teaching the subject should have and use a copy.

At the request of the IAMFES Executive Board, the Committee aborted their proposed project to write a companion manual on procedures to investigate milk and milk products-borne illnesses. Instead the board requested the Committee to shift efforts to developing a manual on the hazard analysis critical control point approach, which is a timely subject and if used it should substantially reduce risks of foodborne diseases. This approach is applicable for

all food products at any and all levels of the food chain. It consists of identifying hazards and assessing their severity and risks (probability of occurrence), determining critical control points, establishing preventive and control measures specifying criteria, monitoring critical control points, and taking immediate action when results of monitoring indicate that the criteria are not met. Work has been started in this endeavor. Persons presently engaged in this activity are:

Frank L. Bryan, Ph.D., M.P.H., Committee Chairperson; Food Safety Consultation and Training, Tucker, GA

Charles A. Bartleson, M.S., Washington State Department of Social and Health Services, Office of Environmental Health, Olympia, WA

O.D. Cook, M.S., M.P.H., R.S., Training Program, State-Federal Relations, Food and Drug Administration, Rockville, MD

Perry Fisher, Corporate Quality Assurance, Campbell Taggart, Inc., Dallas, TX

John J. Guzewich, M.P.H., Bureau of Community Sanitation and Food Protection, New York Department of Health, Albany, NY

Keith H. Lewis, Ph.D., School of Public Health, University of Texas, Houston, TX

Richard C. Swanson, R.S., Division of Emergency and Epidemiological Operations, Food and Drug Administration, Rockville, MD

Ewen C.D. Todd, Ph.D., Bureau of Microbial Hazards, Health Protection Branch, Health and Welfare Canada, Tunney's Pasture, Ottawa, Ontario, Canada

Paul Venugopal, Ph.D., Scientific and Regulatory Affairs, Arby's Inc., Atlanta, GA

Robert B. Gravani, Ph.D. (ex-officio), Institute of Food Science, Cornell University, Ithaca, NY

Respectively submitted,
Frank L. Bryan
Chairperson

Journal of Food Protection Management Committee

The major activity of the JMC has been to consider and coordinate changes in the office of Editor of JFP.

Dr. Elmer Marth gave notice in early March of his intention to retire at the end of 1987.

The Committee was notified and asked to advise regarding (1) keeping all the functions of Editor within one office or (2) dividing the functions so a technical (copy) editor would serve along with the scientific editor. The Committee favored dividing the duties and suggested names of potential nominees for scientific editor.

Consultation among Chairperson Marshall, President Ginn, Executive Manager Hathaway and Editor Marth led to a tentative division of duties and to narrowing the list of nominees for scientific editor. Executive Manager Hathaway surveyed the Ames, IA area for potential technical editors. Chairman Marshall presented a single nominee for scientific editor for consideration by the Board at the annual IAMFES meeting. Approximately twelve persons were seriously considered for the position.

The Committee recognizes the stellar performance of Dr. Marth in 20 years of faithful and effective service as Editor, *Journal of Food Protection*. Under his leadership the journal has more than tripled in size and has become truly international in scope. It is widely recognized as the major publication of research related to food protection.

The JMC recommends that the Technical Editor be charged with the following duties:

1. Prepare accepted manuscripts for the printer.
   a. When necessary improve sentences to make them more concise and readable.
   b. Assure correct use, format and style of abbreviations.
   c. Assure correct form of table and figures.
   d. Consult with author in the event of irregularities in a manuscript.
2. Check proofs returned directly to Technical Editor by author.
   a. Transcribe appropriate corrections made by author to another set of proofs. Assure that notations are made in the correct style.
   b. Read proofs for errors not caught by author.
   c. Recheck table to assure proper typesetting.
3. Coordinate work with Scientific Editor who is ultimately responsible for decisions regarding quality of the Journal.
4. Consult with Journal Management Committee regarding items or issues which are not readily resolved with the Scientific Editor.

ADDITIONAL RECOMMENDATIONS:

1. That the new JFP Editor revise Instructions to Authors and cause them to be published not later than January, 1988 in JFP.
2. That authors be instructed to provide a list of abbreviations used in their respective papers (other than those accepted as commonly understood), and that these be printed at the bottom of the first page of each article in JFP.
3. That IAMFES stop publishing the summary of the volume's table of contents and commence to publish a running 5-year subject index in the December issue of JFP.

Respectively submitted,
R.T. Marshall, Chairperson

Dairy and Food Sanitation Management Committee

The Management Committee of *Dairy and Food Sanitation* met Sunday afternoon with Kathy Hathaway, Editor, Margaret Marble, Associate Editor and Technical Editor, Dr. Henry Atherton.

We are very pleased to report that there is now a 5-6 month waiting list of papers to be published.

When the journal started, we were hard pressed to have a monthly publication of 40 pages. By last year the number of pages had risen to an average of 44 to 48. This year that average is 55 to 60.

Only a few short years ago when a number of readers barely numbered 1,000, the Executive Board decided to give the publication another year to reach a break-even point of 1,800 subscribers. Several changes were incorporated and in only two years this effort paid off.

Last year, *Dairy and Food Sanitation* subscribers numbered 2,464. This year 631 new subscribers have been added bringing the net subscribership to approximately 3,000.

As opposed to years past, other than for one comment concerning advertising space, not one suggestion for improvement on the publication was suggested to or by the Management Committee. I think this speaks well for the publication management staff of IAMFES as well as for the foresight and patience of the officer and Executive Board.

The Management Committee of DFS does have one request and it is directed toward the affiliate members:

1. If the affiliates at their annual meetings would tape some of their speakers and then select an outstanding speech, the Ames office would transcribe that speech for possible reprint in DFS. The Management Committee strongly encourages the affiliates to follow through on this suggestion.

Respectively submitted,
Harold Bengsch,
Chairperson

Food Service Sanitation Committee

Our newly created committee met to discuss among other concerns how we fit into IAMFES and to select projects to promote. We also decided to double our group's participation by the meeting date for July 31-August 4, 1988, in Tampa, Florida.

We developed a direction for the committee to address current safety issues that affect food service sanitation and develop recommendations for policy/resolutions.

Areas of retail food protection that were selected for projects were: temporary food service, ice, milk, shellfish, and food distribution.

Resolutions that are actively being developed include: retail ice manufacture and sale, single service materials/refuse, and temporary food service.

Respectively submitted,
Bennett Armstrong,
Chairperson

Applied Laboratory Methods Committee

An unofficial meeting of the Applied Laboratory Methods Committee was held on August 2, 1987. Fifteen members were in attendance. The meeting was chaired by Helen Carr.

The committee requests that the Board re-establish the Applied Laboratory Methods Committee and appoint Helen J. Carr and Joe Zindulis as co-chairpersons.

The primary *purpose* of the committee is to foster development of laboratory methods.

The *need* for the committee is critical. No other existing laboratory committee is designed to function in the areas of development of methods. If the Applied Laboratory Methods Committee ceases to exist, a gap will occur in the development of laboratory methods and the broadness of the areas that those methods are applied to. The NCIMS Laboratory Committee works primarily with established methods and specifically with milk, whereas the IAMFES Applied Laboratory Methods Committee works with the development of laboratory methods for milk, food, water, etc. IAMFES is not only a broader organization than the NCIMS but is also international. This fact needs to be reflected through the IAMFES laboratory committees.

The committee members see the *goals* of the committee as follows:

1. Maintain and stimulate the development of laboratory methods.
2. Review and identify current problems and problems of emerging concern and solve those problems through comparison studies and the development of laboratory methods.
3. Encourage comparison studies that will ensure development of laboratory methods.
4. Establish a network of information provided by a listing of experts.
5. Provide a resource group to review and help prepare relevant articles for publication.

Actually the committee members have been continuing to function since the committee was disbanded.

Current accomplishments are:

1. A publication called for by the committee on rapid methods and automation of microbiological identification systems by Dr. Fung is now ready for publication.
2. A comparison study on the extended incubation of LST and BGLB is about to begin under the direction of Laurence Roth (Canada).

The above two items have resulted from earlier committee meetings and are now coming to fruition.

The committee was able to draw together committee membes to begin work on the following project (i.e. meeting goals):

1. Data on milk composition in California which will be reviewed by the committee and then be submitted for publication.
2. Pre-Incubation Counts - What does the P.I. count tell me? How can it be used?
3. A resource group was established to review and provide preliminary assistance to ready articles for publication.
4. Consideration of a computer program capable of evaluating bacteria counts on producers' milk on a logarithmic basis of averaging.

Many additional problems were identified and suggestions for solving them discussed. The formal re-establishment of the committee will expediate our progress in dealing with these problems and provide a basis or status to implement a process for solution.

Respectively submitted,
Helen J. Carr,
Acting Chairperson

Resolutions Committee

RESOLUTION I

WHEREAS: The California Association of Dairy and Milk Sanitarians and their Local Arrangements Committee labored long and diligently, with exceptional success, to host the Seventy-fourth Annual Meeting of the International Association of Milk, Food and Environmental Sanitarians in Anaheim, California, and,

WHEREAS: The facilities for both the technical sessions and entertainment were anticipated and provided with the usual generosity and style by the California Association of Dairy and Milk Sanitarians and their Local Arrangements Committee, and,

WHEREAS: These same hosts exercised the highest standards of the International Association of Milk, Food and Environmental Santarians in coordinating the efforts of their industry, educational and governmental members towards the success of this Annual Meeting, and,

WHEREAS: The 1987 Meeting was in every respect "Par Excellence" that will long be remembered and cherished:

THEREFORE, BE IT RESOLVED: That the International Association of Milk, Food and Environmental Sanitarians adopt this resolution of appreciation and gratitude toward the California Association of Dairy and Milk Sanitarians, and further that a copy of this resolution be sent to the California Association of Dairy and Milk Santarians and be published as well in the official organ of the Association - *Dairy and Food Sanitation*.

RESOLUTION II

WHEREAS: The personnel of the Disneyland Hotel were most accommodating to the needs of the members, guests and their families of the International Association of Milk, Food and Environmental Santarians, and,

WHEREAS: The facilities for the program sessions and the members, guests and their families' personal comfort were outstanding:

THEREFORE BE IT RESOLVED: That an appropriate expression of our gratitude be sent to the management and staff of the Disneyland Hotel.

Respectively submitted,
Harry Haverland,
Chairperson

Farm Methods Committee

Minutes of the IAMFES Farm Methods Committee meeting February 20, 1987, Orlando, FL, Marriott Hotel Convention Center, Orange Room. Conducting: Stephen Gray of Diversey Wyandotte for Maynard David, who asked to be excused. Meeting began at 7:30 PM. Gray welcomed all present and introduced Steven Sims. Ken Kirby had asked to be excused until later in the meeting because of a conflict of schedules. Sims asked those members who were not in the membership directory to add their, addresses and phone numbers to the pass-around roll sheet in addtion to their name and affiliation. Stephen Gray asked for committee chairpersons who planned meetings that evening to introduce themselves and tell any changes in their subcommittee membership. The Editorial Review and Education Subcommittee had no planned meeting and no changes except that Jeffrey Ryan has been in Louisiana for some years now and still appears in Louisiana on our subcommittee list. This needs to be changed to reflect Ryan's new location. Cooling and Precooling of Raw Milk on the Dairy Farm Subcommittee - no planned meeting. Sampling of Raw Milk Subcommittee - no planned meeting. Richard Brazis to be added to this subcommittee.

Water Treatment Protection Subcommittee - no planned meeting or changes. As discussed in August, Brazis will assume chairmanship of this subcommittee sometime in early summer. Construction of Buildings and Coordination of Milking System Installation Recommendation Subcommittee - no planned meetings; no membership changes.

Antibiotics, Pesticides and Other Adulterants Subcommittee - Committee chairperson Gerald Hine indicated that they would be having a meeting, and Harry M. Kaufman of Alcide Corp., No. 1 Willard Rd., Norwalk, CT 06851, telephone: 203-847-2555, was added to this subcommittee.

Cleaning and Sanitizing of Farm Milk Equipment Subcommittee - John Scheffel announced that his subcommittee would be meeting and Tim Stutzman, 2433 Christmas Run, Wooster, OH 44691, telephone: 216-345-6694, was added to this subscommittee.

Plastics Subcommittee - No meeting planned. Waste Management Subcommittee - Lowell Allen was present and said that he would be available to meet with committee members.

Farm Sanitation Chemical Advisory Subcommittee - Ted Hickerson said that he would be meeting. Richard Brazis asked to be a member of this subcommittee, also.

At this point, Stephen Gray then directed that those subcommittees planning to hold meetings should go ahead and break off into small groups in the meeting room for approximately 45 minutes. At approximately 8:25 PM the groups came back together.

The Antibiotics, Pesticides, and Other Adulterants Subcommittee chairperson, Gerald Hine, reported that they are beginning preliminary work on guidelines for farmers to use when applying pesticides. This preliminary material should be ready for discussion in a more complete form by the summer meeting.

The Cleaning and Sanitizing of Farm Milk Equipment Subcommittee chairperson, John Scheffel, stated that they were working on color coding symbol or pictogram identifications for chemicals and had asked industry to give input. He said that they considered this to be their number one priority, that their number two priority would be to review and expand a Northeast Dairy Practices Guideline on cleaners and sanitizers.

The Waste Management Subcommittee chairperson, Lowell Allen, said that they had brought into their group some people from outside and had a discussion on the feeding of

animal and food processing waste and the existing regulations that covered those things and decided that no further input in these areas was needed.

The Farm Sanitation Chemical Advisory Subcommittee chairperson, Ted Hickerson, stated that they had been working on a problem for submission to the National Conference on Interstate Milk Shipments and that they had now agreed on wording for a proposed solution to change Item 16R #10 in the PMO. The wording that they will use for the proposed solution is as follows: "Cleaners used on dairy farms shall be purchased in original containers from the manufacturer or distributor which properly identifies the content and, if transferred from the manufacturer's container, that transfer only occur into an originally dedicated end use container which is specifically designated and maintained according to the manufacturer's specifications for that product.

"The label on the dedicated end use container shall include the product name, chemical description, use directions, precautionary and warning statements, first aid instructions, and the name and address of the manufacturer or distributor."

Stephen Gray asked if there were other business to be brought before the Farm Methods Subcommittee members present. Hearing none, he dismissed the meeting at approximately 8:35 PM.

It was also noted that Maynard would be resigning his chairmanship of the Farm Methods Committe after serving four years in that capacity. Steven Sims will be the new chairperson.

Respectively submitted
Maynard David,
Chairperson

Foundation Fund Committee

The Committee continues to pursue appropriate activities to be supported by Foundation monies.

I. *New Proposal* for consideration by the Executive Board.

Subject: Video taping of selected presentations at the Annual Meeting.

Objective: To increase the technical expertise of the membership in the areas of milk, food and environmental sanitation. Most of the topics presented at the Annual Meeting are on the "cutting edge" of technology and making this information available through video cassettes would be a valuable service to our members.

Through this mechanism we may encourage members to attend the Annual Meetings so they would have a greater opportunity to benefit from the many excellent presentations throughout the meeting and have contact with the speakers.

Additionally, this would be one avenue for adding new materials to our Lending Library.

Criteria:

1. Initial activity would be limited to taping four (4) presentations annually. At least one (1) cassette should be made in each of the following areas - milk, food and environmental sanitation.
2. A time frame restriction should apply in reference to taping hours. If possible lecture (presentation) selections should be made on the same day to reduce costs.
3. May need clearance from the hotel to set-up and use video equipment.
4. Need permission from the speakers to tape presentations. A signed release may be needed.
5. Question and answer period should not be taped to reduce or preclude the need for seeking releases from participating individuals.
6. 1/2 inch VHS tapes should be used for distribution.
7. Video tapes (raw footage) will have to be edited.
8. Four (4) copies should be made of each finalized cassette.
9. Maximum cost for the project should not exceed $2,500 per year.
10. Cassettees would be available through the Lending Library.
11. Recommend that this project, if approved, be evaluated after two years of operation for content and utilization out of the Lending Library.

II. We recommend to the Board that the Ivan Parkin Lectureship be "*" in the program and a statement made: Supported by the Foundation Fund.

III. We recommend to the Board that the Developing Scientist Awards, presented at the Awards Banquet be "*" and a statement made: Supported by the Foundation Fund.

IV. A proposal is being considered by the Foundation Fund Committee, in reference to supporting the develpment of a training aid(s), to increase the technical knowledge of our membership concerning recently emerged pathogens such as Campylobacter, Listeria, Yersenia, etc.

Respectively submitted,
Harry Haverland,
Chairperson

Jerome Kozak, FDA, Washington, D.C.

Earl Wright, previous IAMFES Executive Manager and Sally Wright, Arkansas.

A Good Time Was Had By All . . .

Happy winner of one of the Minnie & Mickey Mouse door prizes.

Left to right - Mr. and Mrs. Phil Hermsen, IL, Mr. and Mrs. Kirmon Smith, TX, and Ted Hickerson, TX.

Al Reitman serenades with harmonica.

Renewed friendships at the Past President's dinner.

Delicious food, great fun and festivities during the Monday Night Mexican Fiesta.

IAMFES Awards Presented . . .

Honorary Life Membership to Dr. Elmer Marth and Dr. James Jezeski

Roy Ginn, IAMFES President, presents award to Dr. Elmer Marth.

Dr. Elmer Marth and Dr. James Jezeski, were both presented with a 1987 Honorary Life Membership Plaque and each will receive life membership with IAMFES, including the *Journal of Food Protection* and *Dairy and Food Sanitation*.

Dr. Marth has been a member of IAMFES for approximately thirty-three years. He is now serving in his twentieth year as Editor of the association's *Journal of Food Protection*. Under Dr. Marth's guidance, the Journal has become the most prestigious gazette for publication of scientific data regarding food protection.

Dissertations of Dr. Marth's accomplishments credentially have been recited many times. Dr. Marth has authored or co-authored more than four hundred and twenty-five scientific publications. He is the holder of numerous patents both in the United States and in other countries of the world. Research conducted and reported by Dr. Marth is scholarly; it has brought International accolades of recognition to his profession, to the university were he is in residence and to the United States.

Dr. Jezeski has been a member of the IAMFES for twenty-five years. He is retired faculty of approximately thirty-six years. Since 1985 he has been a food industries consultant. His duties are the concerns with microbiology of foods, relating to safety and quality, including sanitation and quality assurance.

Membership in professional organizations include: IAMFES, Minnesota Sanitarians Assoc., Florida Assoc. of Milk, Food and Environmental Sanitarians, American Society for Microbiology, Institute of Food Technologist, National Environmental Health Assoc. and National Mastitis Council.

Dr. Jezeski has received many honors, awards and commendations. He has also authored or co-authored numerous publications which makes Dr. Jezeski an outstanding recipient for one of this year's Honorary Life Membership awards.

David K. Bandler Recipient of the 1987 Educator Award

The recipient of the 1987 IAMFES Educator Award was born in New York City into a dairy processing family. Although educated in the public school system, he had the advantages of rural living at the family's summer home in Pennsylvania. This experience lead to a deepening interest in agriculture and the noteworthy career that was to follow.

Upon graduation from Cornell in 1955, he was commissioned a 2nd Lieutenant in the United States Army serving first in the Quartermaster Corp and then in the Corp of Engineers. After 13 years of active and reserve duty, he left the service in 1968 at the rank of Captain.

His first position was as Director of Research for the New York State joint legislative committee on foods. In 1965, he joined the Food Science Department at Cornell University as an Extension Specialist in Dairy Science. He rose through the professional ranks and is now Professor of Food Science in the Department.

Our recipient excels in all three areas of responsibility at Cornell -- Teaching, Research and Extension.

Teaching

Our distinguished educator teaches courses in milk quality, extension methods in food science and is actively involved in providing technical information on milk flavor and quality and milk hygiene in Veterinary Medicine and Animal Science courses. He is an outstanding teacher who communicates scientific information in an understandable, practi-

cal, and very informative manner. His course evaluations are consistently excellent and indicate that students appreciate his teaching style and the material that is presented.

Research

The Educator Award recipient has an applied research program to assist food industry and regulatory agencies in solving dairy quality problems. His current research interests include:

1) Relationships of storage temperature and type of bacteria to keeping quality of fluid dairy products.
2) Effects of mechanical handling of raw milk on developed off-flavors.
3) Correlation of off-flavors and consumption of milk by school age children.
4) Methods for early detection of spoilage organisms in milk products.
5) Shelf-life studies to determine the sell-by date of milk and dairy products.

Extension

Our distinguished educator has provided strong leadership in dairy extension for the Food Science Department of Cornell University and New York State since 1965. As Department Extension Leader he has conducted numerous programs, workshops and short courses in the areas of Milk Quality Assurance and Flavor Control, Dairy Products Processing Technology, Nutrition Labeling of Dairy Products, Standards and Regulations for the Dairy Industry, and Consumer Information and Home Processing of Dairy Products. His expertise, enthusiasm, boundless energy, and friendly cooperative spirit are well known at Cornell and throughout the United States.

His many accomplishments and achievements in extension are due to his knowledge of dairy science and his outstanding leadership and communication skills.

In addition to his responsibilities at Cornell, our recipient finds time to be actively involved in numerous professional societies including:

American Dairy Science Association

International Association of Milk, Food and Environmental Sanitarians

Sid Barnard, Awards Chairperson, presents the Educator Award sponsored by the Milking Machine Mfg. Council to David Bandler, Cornell.

Institute of Food Technologists

New York State Association of Milk and Food Sanitarians

Northeast Dairy Practices Council.

Sanitarian's Award Presented to Mr. Erwin P. Gadd

The 1987 Sanitarian's Award, with a plaque and check for $1,000 was presented to Erwin P. Gadd.

As with many members of the International, Erwin finds his roots in the dairy industry with his beginning as a farm boy from LaClede County, Missouri. Upon graduation from Lebanon, Mo. High School, Erwin entered the University of Missouri and graduated in 1950 with a Bachelor of Science degree in Dairy Production and Manufacturing.

In 1952, he began his career in Public Health as a County Sanitarian. His success in establishing comprehensive environmental health programs did not go unnoticed. In 1955, the State of Missouri approached Erwin, and he accepted the position as assistant Chief of the Milk Sanitation Section in the Bureau of Community Sanitation of the State Division of Health. It was not long until Erwin was promoted to the position of Chief of the Milk Sanitation Section.

In 1964, Erwin received his Master's degree in Sanitary Science from the University of Missouri. Shortly thereafter, he was appointed to the present position as Director of the entire Bureau of Community Sanitation.

Erwin has served in the Missouri Association of Milk, Food and Environmental Sanitarians in the following positions: Secretary, 1965 to 1982; Vice president, 1982-1983; President, 1983-1984. During his tenure as Secretary and Vice President, Erwin served the IAMFES as a member of the affiliate council. At this time he also served on various committees of the International including the nominations committee. In 1983, Erwin was Vice President of the National Association of Professional Sanitarians and was elected President in 1984. He also served as Chairman of Council III for the National Conference on Interstate Milk Shipment for the period of 1977-1981. During that same period of time, Erwin was also on the Executive Board of the organization. Currently, Erwin serves as Chairman of the Missouri Consumer Safety Council. He has served on the Missouri State Milk Board continuously since

its establishment by State Law in 1973.

Taken together, Erwin's professional training and experience, his dedication to the betterment of man's environment, his outstanding record of accomplishments to that end, and his active support and contributions to the International Association of Milk, Food and Environmental Sanitarians and other professional associations make Erwin an outstanding and well-deserving recipient for this year's Sanitarian's Distinguished Service Award.

Erwin Gadd - recipient of the Sanitarians Award, sponsored by the Klenzade Division of Economics Laboratory, Diversey-Wyandotte and the H. B. Fuller Co.

Dr. J.H. Silliker Reccives the Harold Barnum Industry Award

Dr. John H. Silliker received the 1987 Harold Barnum Award Plaque and a check for $500 for his contributions to Industry and the International Association of Milk, Food and Environmental Sanitarians.

Dr. Silliker attended the University of Southern California where he received the B.A. degree in Bacteriology in 1947, the M.S. degree in Bacteriology in 1948 and the Ph.D. degree also in Bacteriology in 1950. He then spent a year as a U.S. Public Health Service Research Fellow at the Hopkins Marine Station attached to Stanford University.

After several years of University work, Dr. Silliker travelled to the Midwest and in 1953 joined the research laboratories of Swift and Company. It was here that he developed a love affair with *Salmonella*, which has continued to the present time.

After leaving Swift and Company, he spent five years doing research on the epidemiology of enteropathogenic *Eschericha coli* and on the effect of clinical specimens on isolation of salmonellae. The project on *E. coli* was in conjunction with the University of Illinois Medical School. At the same time Dr. Silliker was preparing the groundwork necessary to establish, in Chicago Heights, Illinois, a testing laboratory and consulting service to work with the food industry.

Dr. Silliker has made numerous contributions to professional organizations including the IAMFES, the American Public Health Association, the Institute of Food Technologists and the American Society for Microbiology. Futhermore, for many years he has been involved in deliberations of the International Commission on Microbiological Specifications for Foods and the World Health Organization. He served on the technical committee responsible for preparing the first and second editions of the "Compendium of Methods for the Microbiological Examination of Foods" and on the committee that prepared, "An Evaluation of The Role of Microbiological Criteria for Foods and Food Ingredients." He has authored or co-authored approximately 100 scientific publications, including research and review papers and chapters in books. He also holds 10 U.S. and 5 Canadian patents.

Dr. Silliker donated the $500 award to the IAMFES Developing Scientist Program. Thank-you, Dr. Silliker!

Developing Scientist Awards

In 1985 the Executive Board of IAMFES institute the Developing Scientist awards program for papers presented at the annual meeting by students. The program was initiated in 1986 in Minneapolis. This year five students were honored at the annual meeting in Anaheim for the papers they presented. The students and the awards they received were as follows: 1st Place, R.K. Lindenthal, University of Minnesota, $500 award; 2nd Place, Elliott T. Ryser, University of Wisconsin, Madison, $200 award; 3rd Place, Ms. Kathleen M. Knutson, University of Wisconsin, Madison, $100 award; 4th Place, A.A. Airoldi, University of Minnesota, $50 award; and 5th Place, Ms. Michelle M. Schaack, University of Wisconsin, Madison, $50 award.

Eligible graduate students are encouraged to enter the competition and present papers at the 1988 annual meeting in Tampa. The competition is open to graduate students enrolled in M.S. or Ph.D. programs at accredited universities or colleges. The paper must be presented by the student and must represent the student's own original research. Five (5) awards will again be given (see p. 563 for details).

Dr. Silliker, John Meyers, NASCO sponsors of the Harold Barnum Industry Award and Sid Barnard.

Certificate of Merit

Certificate of Merit Award winners this year included: Austin Olinger, Upland, CA, Ron Schmidt, Gainesville, FL and Keith Johnson, Stanton, ND.

Developing Scientist Award winners presented by Dr. Lloyd Bullerman.

Shogren Award

The Shogren Award of $100 was presented to the New York State Association of Milk and Food Sanitarians for their work within their own affiliate as well as with the International Association.

Dr. Elmer Marth, WI, was honored for 20 years of devotion as Editor of the Journal of Food Protection. Dr. Lloyd Bullerman, NE, assumes the editorial responsibilities of the Journal in January of 1988.

Austin Olinger, CA received Certificate of Merit Award.

Ron Schmidt, Local Arrangement Chairperson for the 75th IAMFES Annual Meeting, July 31-August 4, 1988, Hyatt Regency Westshore, Tampa, FL. SEE YOU THERE!

1987 Table Top Exhibitors

Thank you to all the Table Top Exhibitors who enhanced the educational aspect of the IAMFES Conference by displaying your products and services during the Table Top Exhibit Hours.

#1 Analytical Technologies, Inc. - Westfield, NY
#2 National Automatic Merchandising Association - Chicago, IL
#3 Foss Food Technology Corporation - Eden Prairie, MN
#4 Capitol Vial, Inc. - Fonda, NY
#5 Gist-Brocades - Charlotte, NC
#6 Norton Company Performance Plastics - Akron, OH
#7 Tekmar Co. - Cincinnati, OH
#8 Penicillin Assays Inc. - Malden, MA
#9 SmithKline Animal Health Products - West Chester, PA
#10 HurriCorp/Alco - Norman, OK
#11 Difco Laboratories, Inc. - Detroit, MI
#12 Walker Stainless Equipment Co., Inc. - New Lisbon, WI
#13 Bactomatic, Inc., - Princeton, NJ
#14 Angenics - Cambridge, MA
#15 3M - St. Paul, MN
#16 BBL Microbiology Systems - Cockeysville, MD
#17 Reitman Manufacturing Co. - Oakland, CA
#18 Educational Testing Service - Longhorne, PA
#19 Michelson Laboratories, Inc. - Los Angeles, CA
#20 Aquafine Corporation - Valencia, CA
#21 MCLAS Technologies - San Antonio, TX
#22 Klenzade, Division of Ecolab Inc. - St. Paul, MN
#23 Bio-Control Systems Inc. - Kent, WA
#24 Intersystems Inc. - Omaha, NE
#25 Minnesota Valley Testing Labs - New Ulm, MN
#26 GENE TRAK Systems - Framingham, MA
#27 Olympus Corporation - Industrial Fiberoptics Division - Lake Success, NY
#28 Environmental Test Systems, Inc. - Elkhart, IN
#29 Chem Bio Consultants and Laboratories - Chicago, IL
#30 Chemland Inc. - Turlock, CA
#31 NASCO West Inc. - Modesto, CA
#32 Morgan - Gallacher, Inc. - Cudahy, CA
#33 Charles Felix Associates - Leesburg, VA
#34 Dairy & Food Labs - Modesto, CA
#35 Trap-Ease America - Costa Mesa, CA
#36 Gibco Laboratories - Lawrence, MA
#37 Dr. R. H. Ellinger & Associates, Ltd. - Northbrook, IL
#38 Thermaco, Inc. - Asheboro, NC
#39 Sparta Brush Company, Inc. - Sparta, WI
#40 Western Exterminator Company - Los Angeles, CA
#41 Medallion Labs. - Minneapolis, MN
#42 B & G Equipment Company - Plumsteadville, PA
#43 Oregon Digital Systems, Inc. - Corvallis, OR
#44 Stainless Fabrication, Inc. - Springfield, MO
#45 Spectronix, Ltd. - Castro Valley, CA
#46 Swagelok Company - Solon, OH
#47 Organon Teknika - Durham, NC

New Members

Arizona

Larry Garten
Indian Hlth Service
Phoenix

Robert L. Gromko
Shamrock Foods Co.
Phoenix

Michael Rathsam
U.S. Public Hlth Service
Keams Canyon

Arkansas

Mark Toland
Tyson Foods, Inc.
Russellville

James H. Whitmore
Tyson Foods, Inc.
Springdale

Darrel Williams
AMPI
Little Rock

California

Cordelia I. Afoejy
Fernando's Mexican Foods
Fontana

Burdell D. Alfke
Carnation Co.
Granada Hills

Kenneth L. Andersen
CA State Univ.
Los Angeles

R. H. Bennett
Univ. of CA
Santa Rosa

Larry Bentley
Alta Dena Dairy
Anaheim

Jennifer L. Bernstein
Orange County Hlth Dept.
Norco

Mary Knoll Bloss
Godfather's Pizza
Irvine

Andy Brand
CA Milk Prod. Assoc.
Artesia

Jorge Briozzo
Todd's Enterprises
Irvine

Margaret Burton
Foster Farms
Turlock

Christine Cardner
CA Dept. Food & Agric.
Covina

Grover N. Christensen
Grover Scientific, Inc.
Saratoga

Charlie Clay
Schlueter Co.
Fresno

Douglas Collins
Dairy and Food Labs., Inc.
Modesto

Betty Cordero
Alta Dena Dairy
Industry

Marylynn Datoc-Bryce
U.S. FDA
Monterey Park

Robert Davis
L.A. County Hlth Dept.
Visalia

Melissa DeHart
Gregg Foods
Garden Grove

Marianne Doolittle
Lawry's Foods
Los Angeles

Angel Enriquez
Sunkist Growers, Inc.
Ontario

Ray Evans
Orange County Hlth
Placentia

Tony L. Freeman
CA Dept. Food & Agric.
Corona

Norm Gramley
CA Dept. Food & Agric.
Orange

William C. Green
CA Dept. Food & Agric.
Sacramento

Cathy Harvey
Monterey Mushrooms, Inc.
Watsonville

Ross Harvey
Knudsen-Kraft
Los Angeles

Paul E. Holland
Carlin Foods Corp.
Gardena

Fran Kaiser
Carnation Co.
Los Angeles

Joel Kolling
Riverside County Hlth
Riverside

Winifred Kovac
Vons Grocery Co.
El Monte

Barbara Larson
Dairyman's Creamery
Tulare

Helen C. Lee
CA State Univ.
Long Beach

Dwayne A. Lehman
Sunkist Growers, Inc.
Ontario

Brent Maddox
Atlantis Dairy Products
Los Angeles

Laura Ann Maphet
CA Dept. Food & Agric.
Los Angeles

Eloisa Martinez
Calreco
Van Nuys

Marcia McGlochlin
CA Coop Creamery
Petaluma

Christophe Megevand
Atlantis Dairy Products
Los Angeles

John Moreszes
Dolly Madison Cake
Los Angeles

JoAnn Niederman
Riverside County Hlth
Riverside

C.R. "Pete" O'Bryan
Foster Farms
Turlock

Nancy Olsen
CA Dept. Food & Agric.
Alameda

Martin O'Saunovan
Golden Cheese Co.
Corona

Maria de Jesus Padilla
Cotija Cheese Co.
Industry

Tony Perry, Jr.
LA County Hlth Dept.
Tulare

George Pfiffner
San Bernardino County
Apple Valley

James L. Prouty
Provista, Inc.
Laguna Hills

Rod Pundamiera
Gregg Foods
Garden Grove

Casimir E. Rasilewicz
Calreco, Inc.,
Van Nuys

Richard L. Reed
CA Dept. Food & Agric.
Los Angeles

Jenny Riede
Todd's Enterprises
Irvine

Blanca Rodriquez
Cotija Cheese Co.
Industry

Douglas R. Roper
Carnation Co.
Sierra Madre

Bart T. Sepulveda
Dole Packaged Foods
San Jose

William G. Shepherd
CA Dept. Food & Agric.
Fresno

Bill Sitton
Mulligan Sales, Inc.
Industry

Patton L. Smith
CA Dept. Food & Agric.
Sacramento

Ralph B. Smith
CA Dept. Food & Agric.
Tulare

Rebecca Smith
Overhill Farms
Inglewood

Richard F. Stier
Dole Packaged Foods Co.
Emeryville

Richard Stueve
Alta Dena Dairy
Sierra Madre

Ronald S. Turnbow
Rodeo Industries
Industry

Nancy Van Coillie
Pillsbury
WatsonvilleP

Ming Chang Wu
Los Angeles

Colorado

John N. Haberkorn
Sinton Food Co.
Colorado Springs

D.C.

Catherine Adams
USDA
Washington

Florida

Sam Boulos
Gold Bond Ice Cream of FL
Ocala

Malcolm J. Bowry
Pentagon Plastics, Inc.
West Palm Beach

William Coolen
Dept. Agric. and Consumer Svcs.
Miami

Richard B. Ellis
Trans-Market Sales & Equip, Inc.
Tampa

Kevin Quinn
Publix Super Markets, Inc.
Lakeland

Georgia

Kenneth M. Green
Coca-Cola Co.
Atlanta

Leo Ross
STORK Food Machinery, Inc.
Gainesville

Idaho

Darrell Brock
H & W Bureau of Labs
Boise

Bruce M. Etchison
USPHS
Lapwai

Kansas

Dave Rasmussen
Tony's Pizza Service
Salina

Kentucky

Kay Sadler
Kroger Co.
Highland Hgts.

Don Udy
SWECO, Inc.
Florence

Illinois

Roger Allman
Humko Products
Champaign

James E. Barr
Morton Salt Co.,
Chicago

Janet Bones
Kraft, Inc.
Arlington Hgts.

D. Fidler
Abbott Labs
North Chicago

Steve Loehndorf
Orval Kent Food Co., Inc.
Wheeling

Sybil Lowry
L.S. Heath & Sons
Robinson

Robert M. Pekelnicky
Leaf, Inc.
Chicago

Dave Reynolds
IL Dept of Agric.
Centralia

Catherine Templeton
Nutra Sweet
Niles

Iowa

Don Squires
Wapsie Valley Creamery, Inc.
Independence

Massachusetts

Michele Pitoniak
Tufts Univ. Safety Dept.
Medford

John Rosenau
Univ. of MA
Amherst

Susan Valley
Agri-Mark, Inc.
W. Springfield

Michigan

Dave Bechtel
Chef Pierre
Traverse City

Mary Ann Barron
MI Dept. of Agric.
Escanaba

Dale L. Johnson
Vern Dale Products, Inc.
Detroit

Debra L. VandeBunte
Ottawa County Hlth Dept.
Holland

Minnesota

Barbara Bentson
Pillsbury Co.
Minneapolis

Missouri

Jean Ann Fuchs
Compton Foods Assoc.
Kansas City

John Stark
Mid America Dairymen, Inc.
Springfield

Nebraska

Audrey Hay
Univ. of NE
Lincoln

Richard L. Puls
M.G. Waldbaum Co.
Wakefield

New Jersey

James F. Cerven
Nabisco Brands, Inc.
Parsippany

Dorothy I. Hollis
Haarmann & Reimer Corp.
Branchburg

Phyllis Jenkins
Best Foods Research & Engineering Ctr.
Union

Joseph Zindulis
Bactomatic, Inc.
Princeton

New Mexico

Jeff M. Sheyka
City of Albequerque
Albequerque

New York

Tia Marie Gutenmann
Taco Bell Corp.
Brooktondale

Al Leslie
A.G. Chemicals, Inc.
New York

Joseph V. Puleo
U.S. Food & Drug Admin.
Brooklyn

Gaylord B. Smith
Mohawk Assoc.
Schenectady

Mario Villarreal
Cornell Univ.
Ithaca

Herbert D. Woolf
Crowley Foods, Inc.
Binghamton

North Carolina

Thomas L. Johnson
M.G. Newell Co., Inc.
Greensboro

North Dakota

Melvin Fischer
City of Bismarck
Bismarck

Ohio

Robert F. Doyle, Jr.
Ponderosa, Inc.
Dayton

Douglas Henry
Warren Rupp-Houdaille, Inc.
Mansfield

Allen J. Morsey
Big Drum/ALCO
Columbus

James T. Peeler
U.S. Pub. Hlth. Service
Montgomery

Oregon

Merrily Ash
Portland Public Schools
Portland

James O. Clark II
Allen Fruit Co., Inc.
Newberg

Mark Keller
Kerry Concentrates
Salem

Tim McCann
Food Products Lab
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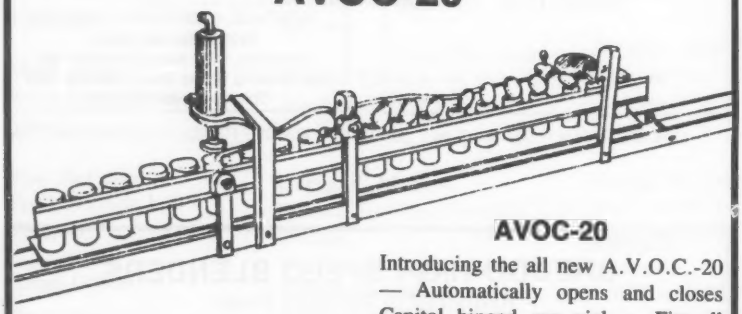

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Abstracts of papers in the November Journal of Food Protection

To receive the* Journal of Food Protection *in its entirety each month call 1-800-525-5223, ext. A or 515-232-6699, ext. A in Iowa.

Two-State Enrichment Procedures for Isolating *Listeria monocytogenes* from Raw Milk, Peter J. Slade and D. L. Collins-Thompson, Department of Food Science/Environmental Biology, University of Guelph, Guelph, Ontario, Canada N1G 2W1

J. Food Prot. 50:904-908

Recovery of two strains of *Listeria monocytogenes* (Scott A and V7) inoculated into raw milk, and of strains indigenous to milk was investigated. Isolation of the organisms from the milk was attempted using pre-enrichment broths [nutrient broth no. 2 (NB2) and tryptose broth (TB)] at 1:5 and 1:10 dilutions of milk. The broths were incubated at 4°C for 0, 7, 14, 21, and 28 d. Recoveries were compared by direct plating onto acriflavine-nalidixic acid agar (AN), McBride *Listeria* agar (MLA) and tryptose agar (TA), and after selective enrichment in thiocyanate-nalidixic acid broth, with and without acriflavine. Favorable recoveries were obtained using a two-stage protocol consisting of cold enrichment of the sample diluted 1:10 in TB, followed by plating 0.1 ml of this pre-enrichment to MLA, and transfer of 1 ml to 9 ml Thio-Nal-Acri broth. Selectively-enriched cultures streaked to MLA and TA yielded optimal isolations after 7-14 of cold enrichment.

Growth and Aflatoxin Production by *Aspergillus parasiticus* NRRL 2999 in the Presence of Acetic or Propionic Acid and at Different Initial pH Values, Gulam Rusul, Fathy E. El-Gazzar and Elmer H. Marth, Department of Food Science and The Food Research Institute, University of Wisconsin-Madison, Madison, Wisconsin 53706

J. Food Prot. 50:909-914

Experiments were done to determine effects of different concentrations of acetic or propionic acid in a glucose-yeast extract-salts medium with an initial pH value of 4.5 or 5.5 on growth and aflatoxin production by *Aspergillus parasiticus* NRRL 2999. Amounts of aflatoxin were measured with reversed-phase high-performance liquid chromatography. The maximum concentration of acetic or propionic acid that permitted growth at an initial pH of 5.5 was 1% after 7 d of incubation and 0.25% after 3 d of incubation, respectively. When the initial pH of the medium was 4.5, the maximum concentration of acetic or propionic acid that permitted growth was 0.25 or 0.1%, respectively. There was no significant difference ($p>0.05$) in amount of mycelial (dry weight) produced by cultures in the presence of 0.0, 0.25, 0.50 or 0.75% acetic acid. Amounts of aflatoxin B_1 and G_1 produced decreased with an increasing concentration of acetic acid. Increasing concentrations of propionic acid caused a decrease in the amount of mycelial dry weight and aflatoxin produced by cultures growing in the medium with an initial pH of 5.5. At an initial pH of 4.5 mycelial growth was slow and at 3 d of incubation amounts of aflatoxin B_1 and G_1 produced were reduced as concentrations of acetic acid increased. This also was true for propionic acid in the medium with an initial pH of 4.5. Cultures with an extended lag phase in the presence of acetic or propionic acid overcame this and then produced large amounts of aflatoxin B_1 and G_1 at 7 and 10 d of incubation.

Microbial Counts of Selected Hot-Boned Primals and Ground Beef, A. W. Kotula, B. S. Emswiler-Rose and B. W. Berry, Meat Science Research Laboratory, Agricultural Research Service, U.S. Department of Agriculture, Beltsville, Maryland 20705

J. Food Prot. 50:915-919

Twenty-four dairy cows were slaughtered under commercial conditions, muscles were excised from one side within 3 h of slaughter and from the second side after 24 h chill at 3°C. Surface aerobic bacterial plate counts, ($APC_{5,\ 20,\ and\ 35°C}$, that is, plates were incubated at 5, 20 and 35°C, respectively) obtained from the rounds immediately before deboning did not vary significantly between the hot and chilled carcasses. The APC ($_{5,\ 20,\ and\ 35°C}$) increased ($P<.01$) during removal of rounds from both hot and chilled carcasses, and the magnitude of the increase was greater than one logarithm. The bacterial count on loins and rounds that were overwrapped and frozen generally was lower than on loins and rounds held at 3°C for 7 and 14 d before being frozen. The APC ($_{5,\ 20,\ and\ 35°C}$) of fresh ground beef fabricated in 450-kg batches from trimmings of hot cow carcasses were not significantly different from that made from the chilled carcasses. Addition of chilled USDA Choice plates to increase the fat content and lower the temperature of the manufactured ground beef increased ($P<.01$) APC counts in most instances. The log count of the USDA Choice plates was about 5 to 6/cm^2; whereas that of the cow beef was about 2 to 4/cm^2. The mean counts of coliforms, fecal coliforms and *Escherichia coli* were usually less than one log, so significant treatment differences, when they did occur, were unimportant. Results of this research indicate that hot boning does not adversely affect the microbial quality of selected primals and ground beef.

Activity of Na-Benzoate and Ethyl-Paraben Against Osmotolerant Yeasts at Different Water Activity Values, Marco F. G. Jermini and Wilheml Schmidt-Lorenz, Food Microbiology Laboratory, Department of Food Science, Swiss Federal Institute of Technology, CH-8092 Zürich, Switzerland

J. Food Prot. 50:920-927

To preserve high sugar products, the effectiveness of sodium benzoate and ethyl-paraben (para-hydroxybenzoic acid ethylester) against 18 osmotolerant yeast strains was investigated at different water activity values (a_w). The influence of pH, acidulant, humectant as well as inoculum level on the tolerance limits for growth of selected strains has also been determined.

The tolerance limits for growth of all 18 tested strains were only slightly affected by the a_w of the substrate, provided that the preservative concentration reflects only the amount of water and not the whole volume of the substrate. At a_w <0.900 and pH<4.0 1500 ppm Na-benzoate was necessary to inhibit growth of all 18 tested osmotolerant yeast strains for 30 d, while in a similar medium but at higher pH-values Na-benzoate was less effective. Similarly, at a_w <0.900 and pH 3.0 a 30-day-free shelf life was guaranteed by addition of 400 ppm ethyl-paraben, while a higher concentration of ethyl-paraben (900 ppm) was necessary if the medium was acidulated to pH 4.8 only. The activity of Na-benzoate or ethyl-paraben against osmotolerant yeasts was usually poor if the initial count of contaminants was high. *Zygosaccharomyces bailii* was the most preservative-resistant osmotolerant yeast among the tested genera and species.

Role of Adhering Microflora in Competitive Exclusion of *Salmonella* from Young Chicks, S. Stavric, T. M. Gleeson, B. Blanchfield and H. Pivnick, Bureau of Microbial Hazards, Health and Welfare Canada, Tunney's Pasture, Ottawa, Ontario, K1A 0L2, Canada

J. Food Prot. 50:928-932

Adherence of gut microflora from *Salmonella*-free adult birds to the ceca of newly hatched chicks, and their role in protection against *Salmonella* was examined. The protective microflora remained attached to the cecal wall after four successive washings. Cultures of washed ceca taken from chicks 30 min to 1 h after treatment with fecal culture gave partial protection. Full protection was obtained with cultures from ceca taken 6 to 8 h after treatment.

Pathogenic Fungi Isolated from Desiccated Mushrooms, Seaweed, Anchovies and Rice Sticks Imported from the Orient, Nuria Kazanas, Division of Microbiology, Food and Drug Administration, Washington, DC 20204

J. Food Prot. 50:933-939

Desiccated mushrooms, seaweed, rice sticks and anchovies imported from the Orient were obtained from commercial sources or from products detained by the U.S. Food and Drug Administration and examined for pathogenic fungi. The etiological agents isolated were mycelial and yeast fungi known to produce deep mycoses in humans: sporotrichosis, phaeohyphomycosis, mycetoma, chromoblastomycosis, candidosis and cryptococcosis. Other fungi isolated were opportunistic fungi and/or producers of mycotoxins. Total mold counts in the foods examined varied from 2×10^2 to 5×10^6. The predominant pathogens in the mushrooms were *Sporothrix schenckii* and *Wangiella dermatitidis*, and counts in the mushrooms imported from Thailand and Taiwan were as high as 1×10^6; however, these pathogens were not isolated from rice sticks, seaweed or anchovies. All presumed pathogenic strains were pathogenic for mice by intraperitoneal injection of 1×10^6 to 10^7 conidia in saline suspension. It was concluded that food can harbor "virulent" fungal pathogens and potentially opportunistic invaders as well as potentially toxigenic fungi.

Growth and Aflatoxin Production by *Aspergillus parasiticus* NRRL 2999 in the Presence of Lactic Acid and at Different Initial pH values, Fathy E. El-Gazzar, Gulam Rusul and Elmer H. Marth, Department of Food Science and The Food Research Institute, University of Wisconsin-Madison, Madison, Wisconsin 53706

J. Food Prot. 50:940-944

Twenty-five milliliters of glucose-yeast-salts medium containing 0, 0.5, 0.75, 1.0, 1.5 and 2.0% lactic acid with an initial pH of 3.5 or 4.5 were inoculated with 1 ml of a spore suspension containing 10^6 conidia of *Aspergillus parasiticus* NRRL 2999 and incubated with 10 d. The pH of the medium, weight of mycelium and aflatoxin production were determined after 3, 7, and 10 d of incubation. Amounts of aflatoxin produced were determined using reversed-phase high-performance liquid chromatography. Cultures grown in the presence of 0.5 and 0.75% lactic acid at an initial pH of 4.5 produced more aflatoxin B_1 than did the other cultures at the end of 3 d of incubation. This was not true for aflatoxin G_1; with increasing concentrations of lactic acid, cultures produced decreasing amounts of aflatoxin G_1. Also, cultures growing in the medium with an initial pH of 3.5 produced more aflatoxin B_1 in the presence of lactic acid at the end of 3 d of incubation than did control cultures. Cultures growing in the presence of 0.5 and 0.75% lactic acid produced the most aflatoxin. Maximum amounts of aflatoxin G_1 were produced after 7 d of incubation, with cultures growing in the presence of 0.5 and 0.75% lactic acid producing the most. Lactic acid did not inhibit growth (mycelium weight) of cultures in the medium with initial pH values of 3.5 or 4.5 except there was a slight decrease in mycelial weight when the medium contained 0.5% lactic acid and had an initial pH value of 3.5.

Foodborne Illness Associated with a Pig Roast, Thomas Novotny, James D. Dingman and Andrew Pavia, Division of Field Services, Epidemiology Program Office, Centers for Disease Control, Atlanta, Georgia 30333; Tri-County District Health Department, Environmental Health Division, 7000 E. Belleview, Suite 301, Englewood, Colorado 80111 and Enteric Diseases Branch, Center for Infectious Disease, Centers for Disease Control, Atlanta, Georgia 30333

J. Food Prot. 50:945-947

Roasting of whole pigs for summer picnics is popular, but technically difficult. We report an outbreak of gastroenteritis which followed a pig roast in Colorado. Twenty (35%) of 57 guests who had attended the roast had nausea, diarrhea, abdominal cramps, vomiting, or fever. An investigation implicated pork as the vehicle of transmission ($p=0.003$, Fisher exact test). The 11 stool specimens tested were not cultured anaerobically, but the illness was strongly suggestive of *Clostridium perfringens* gastroenteritis. An environmental investigation revealed deficiencies in both storage and cooking of the commercially prepared pig. To prevent foodborne outbreaks of illness resulting from whole pig roasts, suppliers should caution customers about adequate cooking processes, customers should be

aware of refrigeration requirements if the animal is to be stored before cooking, meat thermometers should be used to monitor internal cooking temperatures, other food should not be cooked inside the pig carcass during roasting, and leftover meat should be promptly cooled for later consumption.

Effects of Meat Type, Storage Time and Temperature on Various Physical, Chemical and Microbiological Characteristics of Ground Pork, Donna S. Bentley, James O. Reagan, Nelson A. Cox and J. Stan Bailey, The University of Georgia, Department of Animal & Dairy Science, Athens, Georgia 30602

J. Food Prot. 50:948-951

Whole-hog sausage was prepared from hot- and cold-boned pork raw materials to determine the effects of meat type, storage temperature and length of storage on various processing and bacteriological characteristics. Samples were stored at -1 and 4°C for 0, 28 and 56 d. Various physical, chemical and microbiological properties of the sausage were evaluated. Thiobarbituric acid (TBA) values were not affected by meat type (pre or postrigor). Hunter-Color values varied significantly among the meat types and storage temperatures. Total bacterial counts varied significantly among the hot- and cold-boned pork sausage samples (day 0). Cold-boned sausage stored at -1°C had lower plate counts of the various treatments for days 28 and 56. *Pseudomonas* was the predominant organism found in hot- and cold-boned sausage samples. Hot-boned sausage exhibited a more diverse bacterial population than did cold-boned sausage. More gram-positive organisms were found in hot-boned sausage samples. Cold-boned sausage had a lower total bacterial count at day 0 and maintained lower counts and therefore a longer shelf life throughout the study when held at -1°C.

Production of Staphylococcal Enterotoxin A and Thermonuclease in Cream Pies, Elisa Yoko Hirooka, Sonia Presa C. De Salzberg and Merlin S. Bergdoll, Departmento de Pathologia Geral, Centro de Ciência de Alimentos, Facultade de Engenharia de Alimentos, Universidade Estadual de Campinas, Caixa Postal 6121, 13.100, Campinas, SP, Brazil, and Food Research Institute, University of Wisconsin, 1925 Willow Drive, Madison, WI 53706

J. Food Prot. 50:952-955

The change in pH, growth of mesophilic bacteria and growth, thermonuclease (TNase) and enterotoxin A (SEA) production by *Staphylococcus aureus* in artificially inoculated cream pies were investigated. The mesophilic count varied from 10^4 CFU/g at 20°C to 4.0×10^7 CFU/g at 37°C after 12 h of incubation and from 2×10^6 CFU/g at 20°C to 7×10^8 CFU/g at 37°C after 35 h of incubation. The *S. aureus* count varied from $<10^2$ at 20°C to 1.6×10^4 CFU/g at 37°C after 12 h of incubation and from 8×10^2 at 20°C to 5.4×10^6 at 37°C after 35 h of incubation. TNase was detectable after incubation for: 35 h at 20°C (2.9 ng/g), 12 h at 30°C (9.4 ng/g), and 12 h at 37°C (72 ng/g). SEA was detectable after incubation for: 35 h at 20°C (3.9 ng/g), 18 h at 25°C (3.9 ng/g) and 14 h at 30°C (4.8 ng/g).

In vitro Antibiotic Sensitivity of *Staphylococcus aureus* Strains Isolated from a Nigerian Fermented Ceral Drink, Stella I. Onuorah, Abiodun A. Adesiyun and James O. Adekeye, Department of Veterinary Public Health and Preventive Medicine, Faculty of Veterinary Medicine, Ahmadu Bello University, Zaria, Nigeria

J. Food Prot. 50:956-958

The sensitivity of 253 *Staphylococcus aureus* strains isolated from a Nigerian locally-fermented cereal drink (kunun zaki) to 11 antimicrobial agents was determined. Two hundred and forty-seven (97.6%) strains were resistant to one or more of the antimicrobial agents and only 4 (1.6%) isolates were sensitive to all of the agents. Of the isolates from the kunun zaki preparation, 97.8% were resistant while 98.6% from kunun zaki bought at sale outlet and 96.7% of those isolated from utensils were resistant. There was no significant difference in resistance of isolates from the sources ($P>0.05$, X^2). Resistance to penicillin (92.9%), ampicillin (92.9%) and trimethoprim (80.2%) was most frequently encountered while fewer isolates wereresistant to gentamycin (2.0%) and neomycin (3.6%). The predominant antimicrobial resistance pattern was ampicillin-penicillin-trimethoprim detected in 43 (17.0%) strains. The relatively high resistance of *S. aureus* strains isolated from kunun zaki to the tested antimicrobial agents is suggestive of misuse of those drugs in Nigeria.

Effects of Nutrients and Inhibitors in Olives on Aflatoxigenic Molds, Abdelmajid Mahjoub and Lloyd B. Bullerman, Department of Food Science and Technology, University of Nebraska, Lincoln, Nebraska 68583-0919

J. Food Prot. 50:959-963

Growth and aflatoxin production by *Aspergillus parasiticus* NRRL 2999 and *Aspergillus flavus* NRRL 6555 were studied on fresh olives, fresh olives supplemented with nutrients, and fresh olives treated with heat, lye, and freezing temperatures. Studies were also done on yeast extract sucrose agar (YESA) either mixed with chopped fresh olives or made with aqueous extracts of fresh and treated olives. Samples were incubated at 25°C for 7 d. Olive paste supplemented with zinc and sucrose supported little growth and no aflatoxin B_1 production. Amino acids, yeast extract, and a combination of zinc, carbohydrate, and amino acids exhibited extensive growth and moderate amounts of aflatoxin. Fresh and frozen olive pastes supported poor growth and no aflatoxin production. Heat- and lye-treated olives supported extensive growth and little aflatoxin production. Heavy growth and moderate amounts of aflatoxin B_1 were supported by YESA mixed with olive pastes. YESA made with aqueous extracts of olives supported extensive growth and moderate toxin production, except on YESA made with extract from frozen olives which exhibited poor growth and low toxin amounts. *A. flavus* grew similarly to *A. parasiticus* but was unable to produce any aflatoxin except on heat- and lye-treated olives, where traces were detected. Olives are a poor substrate for mold development and may contain inhibiting substances against growth and aflatoxin production.

Eliminating Cross-Connections Between Raw and Pasteurized Products in Dairy Plants, Roger W. Dickerson, Jr., Food and Drug Administration, Center for Food Safety and Applied Nutrition, Division of Food Chemistry and Technology, Food Engineering Branc, Cincinnati, Ohio 45226

J. Food Prot. 50:964-967

A method was developed to identify cross-connections between raw and pasteurized products in dairy plants. A flow diagram of the dairy plant is used to identify post-pasteurization pumps, storage tanks, fillers or other post-pasteurization processing equipment. An envelope is drawn on the flow diagram around all post-pasteurization equipment. Only the few pipelines that penetrate the envelope have the potential of a cross-connection. Each pipeline is traced to its origin to determine if it is a cross-connection.

Effect of Sodium Chloride on Uptake of Substrate by *Staphylococcus aureus* 196E, J. L. Smith, M. J. Maurer, M. M. Bencivengo and C. A. Kunsch, Eastern Regional Research Center, U.S. Department of Agriculture, 600 East Mermaid Lane, Philadelphia, Pennsylvania 19118

J. Food Prot. 50:968-974

Sodium chloride inhibited a number of biochemical parameters in *Staphylococcus aureus* 196E. Induction of phospho-ß-galactosidase, synthesis of staphylococcal enterotoxin A, enzyme activity (phospho-ß-galactosidase) and glucose utilization were approximately four times more sensitive to the inhibitory effects of salt than was growth. Uptake of ^{14}C-2-deoxyglucose and respiratory activity with a number of substrates were inhibited also. The breakdown of o-nitrophenyl-ß-galactoside (ONPG) by lactose-grown *S. aureus* 196E was inhibited by NaCl as well as by other solutes (salts, carbohydrates, amino acids) which suggested that the inhibitory effect is a general one of solutes and not restricted to NaCl. Various ionophores (gramicidin, valinomycin, monensin, lasalocid, m-chlorophenylhydrazone), the H^+-ATPase inhibitor (N,N',-dicyclohexylcarbodiimide), and ion channel blockers (quinine, quinidine, chlorpromazine, tetracaine, verapamil) reversed the inhibitory action of salt on ONPG breakdown by lactose-grown cells; however, these compounds did not reverse NaCl inhibition of glucose utilization. The effects observed here suggest that NaCl (and probably other solutes) exerts an inhibitory effect on transport of substrates into the cells of *S. aureus* 196E.

Using Thermocouples to Measure Temepratures during Retort or Autoclave Validation, Irving J. Pflug and Maurice R. Berry, Jr., Department of Food Science and Nutrition, Unviersity of Minnesota, 1334 Eckles Avenue, St. Paul, Minnesota 55108, and Food Engineering Branch, Center for Food Safety and Applied Nutrition, FDA/HHS, Cincinnati, Ohio 45226

J. Food Prot. 50:975-981

Thermocouples (TCs) are used almost exclusively in designing and validating the heat processes needed for sterilization of product in retorts or autoclaves. In this paper we discuss the vexing errors associated with using TCs in a hot, wet environment. Most problems seem to be associated with the action of steam and water on the TC lead wires and/or caused by temperature gradients on lead wire connectors. These errors are particularly troublesome since they are in the range of 1 to 2°C and are random in nature. The use of a pair of continuous wires that is protected or sealed from the wet retort environment, from the TC junction to the measuring instrument, is the most effective way to reduce or eliminate these problems. The hot, wet environment apparently causes electrochemical effects that produce measurable electromotive forces (EMFs) whenever bare wires come in contact with steam or water. However, the effect is greater when the wires pass through water than through steam. For containers that are nonconductors of electricity, such as plastics, grounding of the TC junction has proved necessary, particularly when processing in flowing water. We conclude that TCs can measure temperature very accurately if properly used. We emphasize that the TC system must be adequately calibrated, and that ambient temperature calibration will not compensate for high-temperature water effects and the errors caused by temperature gradients across connectors.

Foodborne and Waterborne Disease in Canada - 1981 Annual Summary, E. C. D. Todd, Bureau of Microbial Hazards, Food Directorate, Health Protection Branch, Health and Welfare Canada, Ottawa, Ontario, K1A 0L2, Canada

J. Food Prot. 50:982-991

In 1981, a total of 647 incidents, comprising 505 outbreaks and 142 single cases, caused illnesses in 4,804 persons. There were 14.8% fewer incidents and 32.5% fewer cases than recorded for 1980. *Salmonella, Staphylococcus aureus, Clostridium perfringens* and *Bacillus cereus* were the main bacteriological agents to cause illness, but there were far fewer incidents of salmonellosis in 1981 (36) compared with 1980 (64). Etiologic agents *Coxiella burnetii, Listeria monocytogenes* and *Taenia saginata* were reported for the first time in these summaries. Animal agents: paralytic shellfish poison, scombroid poison and insects had also been documented in 1980 and previous years, but the plant agents were new - taro leaves and tablets made from *Spirulina* alga. The number of incidents caused by chemical agents (51), mainly extraneous matter, rancid compounds, metals and monosodium glutamate, were the same as for 1980. Some of the more unusual chemical poisonings were lead in herbal capsules, mercury in yogurt, ammonia in frog legs and laxative in a cake. Ten foodborne disease related deaths occurred mainly in infants infected by *Listeria* and in elderly patients with salmonellosis in a home for the aged. About 33% of incidents and 41% of cases were associated with meat and poultry. Mishandling of food took place mainly in foodservice establishments (33.1% of incidents, 62.4% of cases), homes (13.4% of incidents and 9.5% of cases) and food processing establishments (13.1% of incidents and 2.9% of cases). Food processing problems resulted mainly from chemical contamination, particularly extraneous matter. Most incidents occurred in Ontario (41.3%), British Columbia (19.6%) and Alberta (11.6%), but on a 100,000 population basis incidents were highest in British Columbia (4.6), Nova Scotia (4.4), Alberta (3.4) and Ontario (3.1). Narrative reports of seven previously unpublished foodborne disease problems are presented. Eight incidents of waterborne disease, caused by *Giardia lamblia, Campylobacter, Salmonella, Pseudomonas aeruginosa* and an undetermined agent, are double the number recorded for both 1980 and 1979. However, the number of cases was far fewer in 1981 (178) compared with those for the previous year (1,124). The largest outbreak (46 cases) was caused by *Pseudomonas* infecting the skin and ears of whirlpool bathers in a motel. All the other incidents were from contaminated water obtained on camping trips (3), from *Giardia*-infected municipal water supplies, two from abroad (3) and from non-chlorinated wells contaminated with *Salmonella* (1).

Calendar

1987

November 15-18, SOUTHERN ASSOCIATION OF DAIRY FOOD MFRS., INC. 73RD ANNUAL CONVENTION, to be held at Colonial Williamsburg Foundation, Williamsburg, VA. For more information, contact: John E. Johnson, P.O. Box 10506, Raleigh, NC 27605

November 17-19, INTERNATIONAL CATERERS' SHOW AND CONFERENCE (ICS), to be held at the Merchandise Mart Expo Center, Chicago, IL. For more information, contact: Helen Brett Enterprises, 220 S. State St., Suite 1416, Chicago, IL 60604. 312-922-0966.

November 18, 43RD ANNUAL UNIVERSITY OF MARYLAND DAIRY TECHNOLOGY CONFERENCE, for more information, contact: Dr. James T. Marshall, Department of Animal Sciences, University of Maryland, College Park, MD 20742. 301-454-7843.

TOTAL QUALITY SYSTEM (HACCP) WORKSHOP to be held at the Holiday Inn Southeast, Madison, WI. For more information, contact: Nina Albanese-Kotar, Center for Dairy Research, University of Wisconsin-Madison, 1605 Linden Drive, Madison, WI 53706. 608-262-5970.

November 30-December 3, NATIONAL MILK PRODUCERS FEDERATION ANNUAL MEETING, to be held at the Hyatt Regency, New Orleans, LA. For more information, contact: James C. Barr, 1840 Wilson Blvd., Arlington, VA 22201.

November 30-December 4, THE FIRST LATIN AMERICAN CONGRESS ON FOOD MICROBIOLOGY AND THE I ARGENTINE SYMPOSIUM ON PRESERVATION OF FOODS, to be held in Buenos Aires, Argentina. For more information, contact: Dr. Ricardo Sobol, Secretary General, Bulnes 44 P.B. "B", 1176 Buenos Aires, Argentina. Additional information: Dr. Fernando Quevedo, 525 Twenty Third St., N.W., Washington, D.C. 20037.

December 7-9, MICROBILOOGY AND ENGINEERING OF STERILIZATION PROCESSES, to be held at the University of Minnesota, St. Paul Minnesota Campus. For more information, contact: Dr. William Schafer, Department of Food Science and Nutrition, 1334 Eckles Ave., St. Paul, MN 55108. 612-624-4793.

December 8-11, WORKSHOP IN INSTRUMENT SERVICE AND REPAIR, to be held at the Anderson training facility and dairy processing plant in Fultonville, NY. For more information, contact: Michael D. Cunningham, Anderson Instrument Company, Inc., R.D. 1, Fultonville, NY 12072. Telephone: 518-922-5315.

1988

January 11-20, 38th ANNUAL UNIVERSITY OF MARYLAND ICE CREAM SHORT COURSE, for more information, contact: Dr. James T. Marshall, Department of Animal Sciences, University of Maryland, College Park, MD 3742. 301-454-7843.

January 20-23, FOURTH INDUSTRY-WIDE U.S. DAIRY FORUM, sponsored by the Milk Industry Foundation and International Ice Cream Association. To be held at the Innisbrook in Tarpon Springs, FL. For more information, contact: Joe Dugan, 888 Sixteenth Street, N.W., Washington, DC 20006. 202-296-4250; TELEX 150185.

February 10-11, DEPARTMENT OF FOOD SCIENCE & NUTRITION DAIRY & FOOD INDUSTRY CONFERENCE, to be held at the Fawcett Center for Tomorrow, Ohio State University, Columbus, OH. For more information, contact: John Lindamood, 2121 Fyffe Road, Columbus, OH 43210-1097.

February 12-14, DAIRY PRODUCTS INSTITUTE OF TEXAS ANNUAL CONVENTION, to be held at the Hershey Hotel, Corpus Christi, TX. For more information, contact: Glenn R. Brown, 201 Vaughn Building, Austin, TX 78701.

February 15-17, ABC RESEARCH CORPORATION'S 14TH ANNUAL TECHNICAL SEMINAR will be held at the University Centre Hotel, Gainesville, Florida. For more information, please contact Sara Jo Atwell, ABC Research Corporation, 3437 SW 24th Avenue, Gainesville, FL 32607. Telephone: 904-372-0436.

February 16-17, KAMFES 1988 ANNUAL CONFERENCE will be held at the Ramada Convention Center, 9700 Bluegrass Pkwy, Louisville, KY. For more information contact Dale Marcum, 108-A Sunset Ave, Richmond, KY 40475.

February 21-24, SWEETENER USERS GROUP, INTERNATIONAL SWEETENER COLLOQUIUM, to be held at Innisbrook Resort, Tarpon Springs, FL. For more information, contact: Constance E. Tipton, 888 16th Street, NW, Washington, DC 20006.

March 1-2, VIRGINIA ASSOCIATION OF SANITARIANS AND DAIRY FIELDMAN'S ANNUAL MEETING AND DAIRY INDUSTRY WORKSHOP will be held at Virginia Polytechnic Institute and State University, Blacksburg, VA. For more information, contact: W.J. Farley, Rt. 1, Box 247, Staunton, VA 24401.

March 6-8, OHIO DAIRY PRODUCTS ASSN., INC. ANNUAL CONVENTION, to be held at Dayton Marriott Hotel, Dayton, OH. For more information, contact: Don Buckley, 1429 King Ave., #210, Columbus, OH 43212.

March 6-9, TEXAS PUBLIC HEALTH ASSOCIATION, 63rd Annual Meeting to be held at the Hilon Palacio del Rio in downtown San Antonio. For more information, contact: James O. Allen, Jr., Texas Public Health Association, PO Box 4246, Austin, Texas 78765.

AMERICAN BUTTER INSTITUTE - NATIONAL CHEESE INSTITUTE ANNUAL MEETING, to be held at the Hyatt Regency Washington on Capitol Hill, Washington, DC. For more information, contact: the ABI-NCI, 699 Prince Street, Suite 102, Alexandria, VA 22314. 703-549-2230.

March 13-16, INTERNATIONAL CONFERENCE ON THE BIOTECHNOLOGY OF MICROBIAL PRODUCTS: NOVEL PHARMACOLOGICAL AND AGROBIOLOGICAL ACTIVITIES, to be held in San Diego, CA. For more information, contact: Mrs. Ann Kulback, SIM, PO Box 12534, Arlington, VA 22209-8534.

March 21-25, DEPARTMENT OF FOOD SCIENCE & NUTRITION, MID-WEST WORKSHOP IN MILK & FOOD SANITATION, to be held at Fawcett Center for Tomorrow, Ohio State University, Columbus, OH. For more information, contact: John Lindamood, 2121 Fyffe Road, Clumbus, OH 43210-1097.

DAIRY AND FOOD INDUSTRIES SUPPLY ASSOCIATION 1988 ANNUAL CONFERENCE to be held at Marriott's Rancho Las Palmas in Rancho Mirage, CA. For more information call DFICA offices at: 301-984-1444.

April 10-13, MILK INDUSTRY FOUNDATION, INTERNATIONAL ICE CREAM ASSOCIATION, MARKETING & TRAINING INSTITUTE SPRING BOARD MEETING, to be held at The Ritz Carlton, Laguna Niguel, CA. For more information, contact: John F. Speer, Jr., 888 16th Street, NW, Washington, DC 20006.

38th ANNUAL UNIVERSITY OF MARYLAND ICE CREAM CONFERENCE, for more information, contact: Dr. James T. Marshall, Department of Animal Sciences, University of Maryland, College Park, MD 20742. 301-454-7843.

April 18-21, AMERICAN DAIRY PRODUCTS INSTITUTE ANNUAL MEETING & TECHNICAL CONFERENCE, to be held at Chicago O'Hare Marriott Hotel, Chicago, IL. For more information, contact: Warren S. Clark, Jr. 130 N. Franklin Street, Chicago, IL 60606.

April 20-21, 1988 CENTER FOR DAIRY RESEARCH CONFERENCE (MILKFAT: TRENDS AND UTILIZATION), alternates with Cheese Research and Technology Conference, to be held at the Holiday Inn Southeast, Madison, WI. For more information, contact: Nina Albanese-Kotar, Center for Dairy Research, University of Wisconsin-Madison, 1605 Linden Drive, Madison, WI 53706. 608-262-5970.

May 22-24, GEORGIA DAIRY PRODUCTS ASSOCIATION ANNUAL CONVENTION, to be held at Callaway Gardens, Pine Mountain, GA. For more information, contact: Pat Hamlin, P.O. Box 801, Macon, GA 31208.

July 31-August 4, IAMFES 75th ANNUAL MEETING, to be held at the Hyatt Regency Westshore, Tampa, FL. For more information, contact Kathy R. Hathaway, IAMFES, Inc., PO Box 701, Ames, IA 50010. 800-525-5223, in Iowa 515-232-6699.

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August 7-12, 1988 ANNUAL MEETING OF THE SOCIETY FOR INDUSTRIAL MICROBIOLOGY, to be held at the Hyatt Regency, Chicago, IL. For more information, contact: Mrs. Ann Kulback, SIM, PO Box 12534, Arlington, VA 22209-8534.

September 11-13, NATIONAL DAIRY COUNCIL OF CANADA ANNUAL CONVENTION, to be held at the Winnipeg Convention Centre, Winnipeg, Manitoba. For more information, contact: Pat MacKenzie, 141 Laurier Avenue West, Ottawa, Ontario, Canada K1P-5J3.

September 11-14, SOUTHERN ASSOCIATION OF DAIRY FOOD MANUFACTURERS, INC. 74TH ANNUAL CONVENTION, to be held at the Boca Raton Hotel & Club, Boca Raton, FL. For more information, contact: John E. Johnson, P.O. Box 1050, Raleigh, NC 27605.

September 21-22, UNITED DAIRY INDUSTRY ASSOCIATION ANNUAL MEETING, to be held at the Hyatt Regency Minneapolis, Minneapolis, MN. For more information, contact: Edward A. Peterson, 6300 N. River Road, Rosemont, IL 60018.

October 9-13, AACC ANNUAL MEETING, to be held at the Hotel InterContinental San Diego, in San Diego, California. For more information, contact: Raymond J. Tarleton, American Assoc. of Cereal Chemists, 3340 Pilot Knob Road, St. Paul, MN 55121. 612-454-7250.

October 15-19, MILK INDUSTRY FOUNDATION & INTERNATIONAL ICE CREAM ASSOCIATION ANNUAL CONVENTION & SHOW, to be held at Marriott's Orlando World Center, Orlando, FL. For more information, contact: John F. Speer, Jr., 888 16th Street, NW, Washington, DC 20006.

November 28-December 1, NATIONAL MILK PRODUCERS FEDERATION ANNUAL MEETING, to be held at the Hilton, Anaheim, CA. For more information, contact: James C. Barr, 1840 Wilson Blvd., Arlington, VA 22201.

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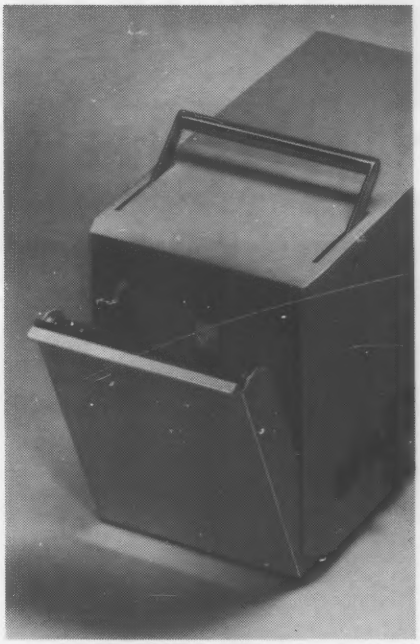

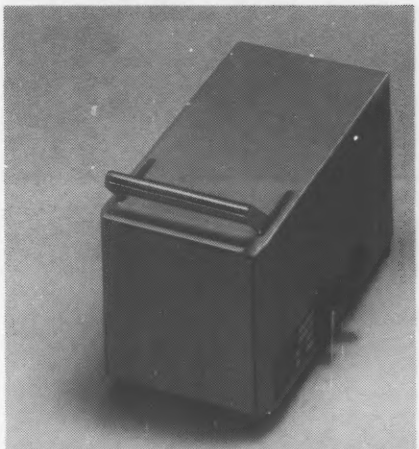

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If you feel it is time to review your own air quality standards, please feel free to call us. We have an excellent booklet which outlines the practical points you should address in the control of airborne contaminants.

Even if you simply want to discuss your current situation with one of our food plant specialists, we'll be happy to take your call. Later, if you feel it's appropriate, we'll forward you complete technical literature on King's specially designed environmental control HVAC systems for food plants.

The King Company Air Handling Division:
PO Box 287; Owatonna, MN 55060;
FAX 507/451-3786; Telex: 29-0944;
Phone 507/451-3770.

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and sulfamethazine etc.)
that spoiled the milk,
that contaminated the silo,
that shut down the plant,
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